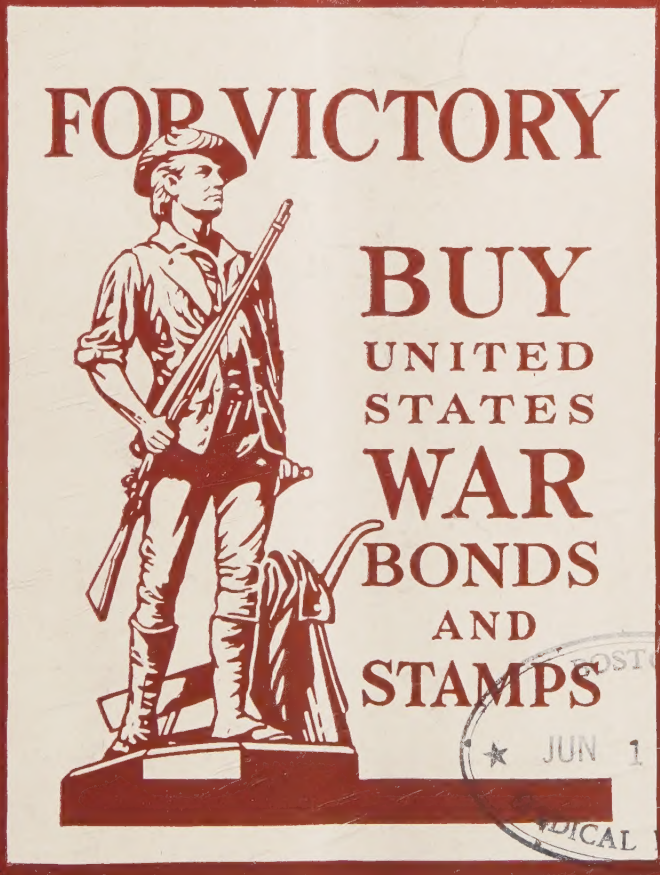
MEDICAL RECORD



★ JUN 1

May 1943

Vol. 156, No. 5

"Seeds of the Red Lotus

will make those with gazelle eyes unfruitful." —KALYANAMALLA*

● The great poets of India in the measured cadences of Sanskrit suggested certain methods, some of a mystic nature, for the control of fertility. But neither poetry nor mysticism have paved the way to medical progress in India.

● *The Physician's Responsibility* . . . It is the province of medicine, the prerogative of the physician, to make decisions in all matters relating to fertility and sterility. The physician's responsibility encompasses all those who need and seek advice. The physician is the only person qualified to give it.

Clinical and laboratory research has established the efficacy of Ortho-Gynol as prescribed by physicians for the control of conception.

*Himes—Medical History of Contraception

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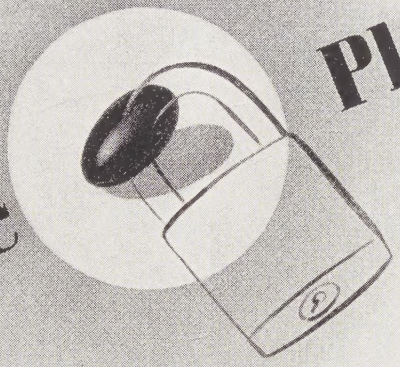
but not from the patient

Hematinic Plastules*



The iron in Hematinic Plastules is *ferrous iron*—readily available for conversion into hemoglobin. To keep it that way—sealed from the oxidizing action of air—it is hermetically sealed in soluble elastic capsules.

Thus the iron in Hematinic Plastules is readily assimilated, even in the presence of gastric hyposecretion.

For aiding in quick return to normal hemoglobin levels prescribe Hematinic Plastules.

℞

Hematinic Plastules Plain — 1 TID after meals, or

Hematinic Plastules with Liver Concentrate — 2 TID after meals

For the treatment of hypochromic and secondary anemia.

Available in bottles of 50's, 100's and 1000's

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The routine use of Prostigmin Methylsulfate 'Roche,' 1:4000 provides a convenient and effective means of preventing postoperative abdominal distention and urinary retention. Since many hospital staffs have been drastically reduced, every precaution which can be taken to obviate troublesome postoperative procedures is of major importance. Any measure that affords smoother convalescence for the patient and reduces the work of the staff, is a doubly valuable expedient. To minimize discomfort due to abdominal or bladder atony inject 1 cc of Prostigmin (1:4000 solution) intramuscularly immediately after operation. Follow with 5 similar 1-cc injections at 2-hour intervals. Additional injections may be given if necessary. HOFFMANN-LA ROCHE, INC., ROCHE PARK, NUTLEY, NEW JERSEY.

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FORMERLY KNOWN AS THE MEDICAL JOURNAL AND RECORD

PUBLISHED MONTHLY BY

THE MEDICAL JOURNAL AND RECORD PUBLISHING CO., INC.

MAY 1943

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Potent oral therapy for adreno-cortical deficiency states is now available with

SUBLINGUAL CORTATE

Previous to the development of the sublingual technique of hormone administration, certain hormones such as desoxycorticosterone acetate were inert when given by mouth. By the new sublingual method, however, CORTATE, "the survival hormone", is absorbed from the sublingual space directly into the blood stream and achieves all the therapeutic results attained by intramuscular injection. Complete and potent therapy is thus available for syndromes due to insufficient cortical hormone, characterized by easy fatigability, asthenia, hypotension and hypometabolism.

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Further details may be obtained by writing to the Medical Research Division

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FOR VICTORY AND AFTER: BUY U. S. WAR BONDS

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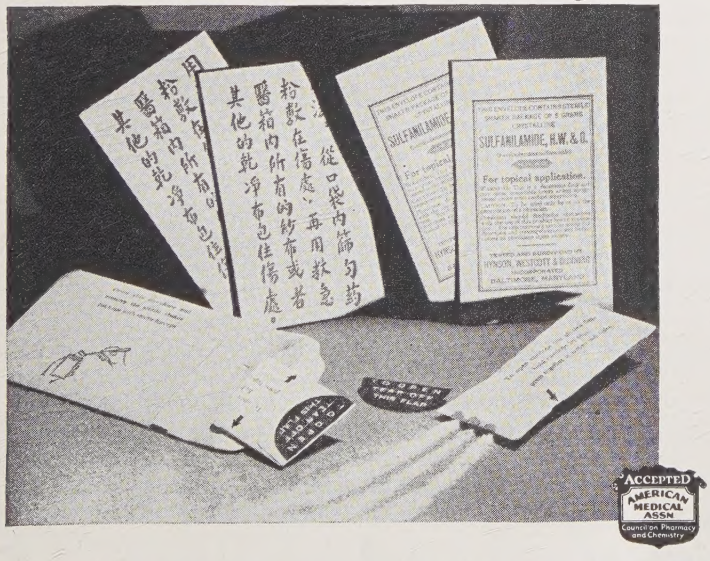

Our total output of 5 gram Sterile Shaker Packages of Crystalline Sulfanilamide, 30–80 mesh, developed by our research staff in cooperation with military authorities for the treatment of wounds in combat zones, has previously been requisitioned for military needs (totaling more than thirty million packages).

Completion of our new Sulfanilamide Division plant ahead of schedule and the resulting increased production has now made it possible for us to supply these packages for civilian medical use.

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The package will be available only by or on the prescription of a physician.

Complete information and prices on request.

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Open Forum

Diverticulum

A diverticulm is a small cul-de-sac or pouch arising from another larger one. In this case the diverticulum arose from the right upper portion of the esophagus, about twenty-seven years ago, from a persistent and prolonged cough, which possibly produced an excess of mucous membrane from which the sac developed when the cough ceased. The pouch when first seen by the x ray was about the size of an acorn. Continuing these studies from time to time, we saw it slowly increase to the proportions of a medium sized Bartlett pear. The symptoms which resulted from taking food were as follows:

Hypersecretion of mucous and saliva to such a degree that the patient could not lie down, day or night without the use of a cuspidor; a tickling sensation in the throat on taking food or liquids, causing cough; a feeling of fullness in the region of the sac; emptying the pouch with a cough during or after meals immediately, sometimes through the nares. The paroxysms or spasms occurred so suddenly and without warning that at times the patient could scarcely get a napkin up in time to catch the outflow. There was no nausea, vomiting or pain, except the pain of an occasional sore throat when deglutition became practically impossible.

I am cognizant of the fact that the above named symptoms may to some degree have been exaggerated by a subconscious sympathetic element entering into the picture. However, an effort was made to eliminate that angle.

Treatment

A number of physicians were consulted. The most outstanding were the Mayo brothers, Chevalier Jackson, father of the bronchoscope, and my genial friend, Dr. John B. Deaver, who, after hearing the story, all asked the patient one question, "Do you get sufficient nourishment?" "Yes", was the answer. All these eminent physicians said, "Then just leave it alone".

In the meantime sprays, gargles and nose drops had been used, and medicine taken internally, which had been suggested by those who thought they knew but did not, all to no avail. The symptoms gradually increased in severity up to eight months ago. The paroxysms first occurred occasionally at meal time, then weekly, and then several times a week, until the spasms came on during every meal, the patient not getting enough food to sustain the body.

At this stage it became evident that something had to be done and soon. An operation appeared to be inevitable. Admitting one's age as over three score years and ten, even though one has never been sick a day in his life, when it comes to surgery, the ego is woefully deflated, which may end in one of two ways, either one is helped out of the difficulty, or out of the world, which few people relish.

It was thought that in this case some relief might be attained by the use of drugs—such as the astringents. Tannin was selected, since it contracts surfaces by coagulating and hardening the cells, and on mucous membranes it has the same action by checking secretion. Hence, three or four drops of tannic acid were dropped on a bit of hard peppermint candy which was left to dissolve slowly on the tongue an hour before meals. The result was almost magical. The patient has not had the vestige of a cough or spasm since beginning the treatment. He can smoke a good cigar with comfort and last, but not least, he can indulge in pre-prohibition vintages, moderately, of course, without disrupting the works, like any other sociable Presbyterian.

Seriously speaking, one cannot by any stretch of the imagination, realize even faintly the relief and comfort this simple treatment produced.

E. E. Neff, M.D.
Altoona, Pa.

Incidence of Meningococcus Meningitis

During the latter part of 1942 and the early weeks of 1943, the reported incidence of meningococcus meningitis approached the epidemic proportions of 1929, according to *Public Health Reports* (March 19, 1943). In the early summer of 1942, attention was called in the *Public Health Reports* to the fact that the incidence of the disease each week was exceeding the five-year (1937-41) median. This excess incidence began during February 1942 and continued throughout the remainder of the year. In some weeks of November the numbers of reported cases were twice the five-year median expectancy, in December 1942 they were about three times the median, while in January and February 1943 they were four to nine times the median figures. In 1942 a total of 3,774 cases was reported in the United States; to March 13, 1943, a total of 4,040 cases has been reported. The highest incidence rates so far this year have apparently been in the New England, South Atlantic, and Pacific States. The largest numbers of cases are being reported from the South Atlantic, Middle Atlantic, Pacific, and New England areas. With the exception of the Mountain region the current incidence in the United States is the highest in all regions since 1930.

The Peril of Postwar Disease

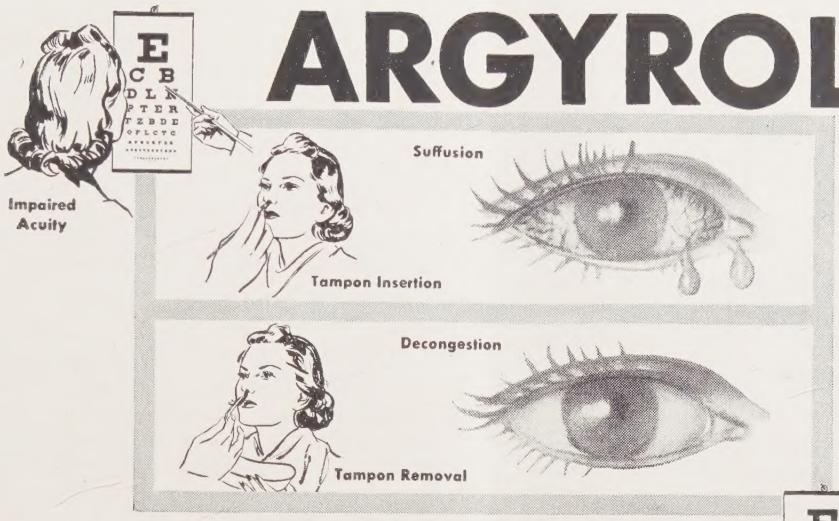
The National Conference on Planning for War and Postwar Medical Services recently held an all day session at the Waldorf-Astoria Hotel, New York, under the auspices of the Carlos Finlay Institute of the Americas, with the cooperation of many leading medical, surgical and pharmaceutical organizations. The meeting was held for the purpose of discussing measures to meet the menace to health brought about by the war.

The morning session was devoted principally to discussions of the epidemic diseases and nutrition; the afternoon session was concerned largely with personnel, supplies and research, and the program for the evening session centered around the ideals which should prevail in working out definite plans of interest to all the peoples of the world.

Dr. James E. Paullin, of Atlanta, Ga., presided at the morning session. The first speaker was Lieutenant Colonel Thomas T. Mackie of the Army Medical School, who discussed the control of tropical diseases, which he said was a serious problem now in the prosecution of the war and in the postwar period. Because millions of American soldiers will be massed in various tropical and subtropical regions throughout the world, the potential hazards of the diseases to which they will be exposed are greatly increased. Dr. Thomas Francis, Jr.,

(*Continued on page 264*)

ARGYROL



DECONGESTION WITHOUT VASOCONSTRICTION

Safe and Effective Mucous Membrane Therapy

● The ocular suffusion and decongestion incident to the Dowling tampon treatment indicate that ARGYROL'S action is physiological as well as chemical—that it marshals to its aid many of the natural defensive processes in combating infection.

The insertion of an ARGYROL tampon into the nose, often produces an intense injection and suffusion of the conjunctiva followed by decongestion. Indeed, ocular congestion present *before* the tampon insertion is frequently improved by this method, and visual acuity may be rendered more acute.

This then is evidence of ARGYROL'S ability to achieve decongestion not only of the nasal blood vessels, but of the entire head, *without resort to powerful vasoconstriction*. Add to this, ARGYROL'S freedom from irritating properties in any concentration from 1% to 50%, the fact it is non-injurious to the cilia, its ultra fine colloidal dispersion and highly active Brownian movement, its controlled pH and pAg, and its remarkable soothing properties, and you have a few of the reasons why ARGYROL is the overwhelming choice of specialists in treatment of mucous membrane infections.

A. C. BARNES COMPANY, NEW BRUNSWICK, N. J.

ANTISEPTIC EFFICIENCY PLUS

1. SOOTHING AND INFLAMMATION-DISPELLING PROPERTIES
2. NO CILIARY INJURY—NO TISSUE IRRITATION
3. NO SYSTEMIC TOXICITY
4. NO PULMONARY COMPLICATIONS
5. DECONGESTION WITHOUT VASOCONSTRICTION

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TRIKETOL is a distinct laboratory achievement representing years of original research in bile derivative chemistry. This research culminated in the production, by *proper oxidation*, of crystalline-pure, therapeutic bile acids, free from toxic, irritating contaminants inherent in crude bile. New formulations plus new equipment, of original design, contribute greatly to the exclusive ENDO method of producing TRIKETOL.

Exhibiting the two essential bile-acids—dehydrocholic and dehydrodesoxycholic—at maximum therapeutic efficiency, TRIKETOL is indicated wherever an active hydrocholeretic and cholegenic is appropriate, as in chronic cholecystitis, biliary stasis and other hepato-biliary disorders.

Moreover, its ability to increase production of bile (and in subsequent secretion as thin, limpid bile) is proving highly effective in the management of constipation.

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Available in bottles of 40 and 100 tablets, 3¾ grains each, at prescription pharmacies.

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RICHMOND HILL, NEW YORK

professor of epidemiology, University of Michigan School of Public Health, read a paper on "The Epidemiology of Influenza", in which he warned of the danger of another postwar influenza epidemic throughout the world.

Dr. L. T. Coggeshall, also of the School of Public Health of the University of Michigan, said that malaria constituted a grave danger to America both on the battle front and the home front. There were many reasons for this, the main one being that great numbers of American soldiers will be stationed in malaria infested areas. Dr. Coggeshall also pointed out that wide expansion of air transportation constituted an important factor in the spread of epidemic disease.

The keynote of the meeting was that defence measures should be taken immediately against diseases which will menace the health of the world in the postwar period.

Transportation Facilities for Casualties

Transportation for casualties from scenes of disaster to hospitals and for injured persons or other patients removed from Casualty Receiving Hospitals to Emergency Base Hospitals are included in plans for emergency transport service during war disasters, described in recent Operations Letters issued by the Office of Civilian Defense.

Plans for local transportation are centered in the Transport Officer of the U. S. Citizens Defense Corps. It is the duty of the Transport Officer to maintain inventories of local equipment that can be used by the various emergency services of the Citizens Defense Corps, and he is responsible for organization, training, and supervision of volunteer drivers' units. Such equipment may include passenger cars, station wagons, motorcycles, ambulances, and other private vehicles. The instructions provide, however, that ambulances and cars or trucks used as improvised ambulances, with their drivers, should be assigned regularly to the Emergency Medical Service and be under its direction.

Through joint action of the Office of Defense Transportation and the Office of Civilian Defense, concurred in by the War and Navy Departments, local commercial motor vehicles, including taxicabs and trucks of small operators, which are now under the jurisdiction of the Office of Defense Transportation, have been released to and also are available to the Transport Officer for local service in case of war emergency. He may make use of such vehicles immediately, without application to the ODT.

For transport facilities needed outside the local area, such as might be required for evacuation of civilians or for transfer of injured persons to Emergency Base Hospitals in other cities or rural areas, the OCD and the ODT are cooperating in the organization of motor transport units in the larger common, contract, and private motor carriers of the critical areas of the country. These units, which will be trained in convoy service, will be provided by the ODT on request of the local Commander of the Citizens Defense Corps through the State Transport Officer and proper ODT district managers.

The ODT is at present developing an organization in the critical areas of the country under which its district managers will make contact with the local Transport Officers to make certain that each community is organized to function under the plan.

GROWING UP WITH THE NATION

In 1876, the Philadelphia Centennial heralded the approach of the great industrial era. In the same city, a youthful organization was implanting its roots in the soil of American pharmacy. William Richard Warner, true to the pioneering spirit of his age, was even then evolving new and better methods of making medicinal drugs.

Over the years, the house of William R. Warner & Co., Inc. has grown until today its branches girdle the globe, in fulfillment of its early chosen motto, "Omnis Orbis." And, conscious of its obligation to play a worthy part in the progress of pharmaceutical science, the house of Warner, through its affiliated Warner Institute for Therapeutic Research, continues to pioneer in the pursuit of original investigation and research, to the end that still better, safer means may be found for the prevention and control of disease.

OMNIS ORBIS
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KARO Red Label and Blue Label are equally effective in MILK MODIFICATION

The chemical compositions and caloric values of these two types of KARO are practically identical.

Therefore the slight difference in flavor (hardly noticeable in the milk mixture) in no way affects the value of KARO as a milk modifier.

Either type may be prescribed for prematures, newborns and infants.

How much KARO for Infant Formulas?

The amount of KARO prescribed is 6 to 8% of the total quantity of milk used in the formula—one ounce of KARO in the newborn's formula is gradually increased to two ounces at six months.

CORN PRODUCTS REFINING CO.
17 Battery Place • New York, N. Y.

Interrogatories Out of State, How Far Privileged

In an action in the New York courts by the beneficiary in a life policy issued by the defendant on the life of plaintiff's husband, the defendant set up certain alleged misrepresentations made by the insured in his application for the policy. The misrepresentations claimed were that the deceased had stated he had never suffered from illness, disease, or other injury and that he had not been treated by physicians nor had he consulted with them within five years prior to the time of making his application.

The defendant insurance company proposed interrogatories to be submitted to the superintendent of the University of Pennsylvania Hospital at Philadelphia, Pa., who is a physician. By certain of these interrogatories the defendant sought the production of the record of the deceased's medical treatment while a patient at the hospital, and of x ray plates and photographs made while the deceased was a patient there. The record, the plates, and the photographs, if they existed, were made by physicians in the course of attending the patient in a professional capacity.

The plaintiff moved to strike out these proposed interrogatories on the ground that the testimony called for by them was privileged under sections 352 and 354 of the New York Civil Practice Act. The defendant contended that as the interrogatories were pertinent to the issues involved in the action, they must be allowed and that the question of competency might be determined upon the trial when the testimony was sought to be read.

The New York Appellate Division, Lorde vs Guardian Life of America 252 A. D. 646 300 N. Y. S. 721, held that the information sought by the interrogatories was privileged within the meaning of the act. Section 354 deals with the information which, under certain circumstances, a physician or surgeon may or may not disclose "upon a trial or examination." "By the express language of the statute," the court said, "the privilege applies to information disclosed upon an examinated as well as upon a trial.

"The plain purpose of the statute," the Appellate Division said, "would be frustrated if the information acquired by the physician were revealed, as is here suggested, upon an examination without the state. The disclosure of secrets imparted to a physician by a patient is not permitted by our statute upon an examination before a commissioner or a referee any more than it is upon the trial of the action or proceeding, unless there be a waiver made in open court on the trial of the action or proceeding. In a word, the statute contemplates that, in the absence of the required waiver, the confidential information be shut off at the source." In this case the deceased's personal representatives had declined to waive the provisions of section 352.

Under the authorities it is competent for defendant to show such ordinary incidents and facts as are plain to the observation of any one without expert or professional knowledge. Interrogatories designed to elicit whether the deceased was treated professionally, the names of the physicians who treated him, the date of his entry to the hospital, and the date of his discharge, are proper. But the questions which called for the production of hospital records for the obvious purpose of establishing the character of the disease or ailment for which the insured was being treated at the hospital should, it was held, have been stricken out.

Investigate these Results in Prostatic Hypertrophy

Tests on the use of V-P "Vitamin F" Concentrates with patients suffering from Prostatic Hypertrophy clearly indicated these outstanding effects: 1—Marked reduction in size of prostate in all tests cases. 2—Diminished residual urine among all patients (completely eliminated among 63%). 3—Disappearance of part or all the pain and discomfort. 4—Nocturia eliminated in 68% of the cases. 5—Marked increase in sexual libido.

"Eflex" perles and "Cataplex F" tablets are available in the following sizes: 36 perles or tablets $1.50; 120 perles or tablets $4.50; 500 perles or tablets $17.25.

"CATAPLEX F"

"Cataplex F" is a tablet concentrate of Essential Unsaturated Fatty Acids—Linoleic, Linolenic and Arachidonic. Although "Vitamin F" has not yet been officially recognized as a member of the vitamin family, it has been shown to be of extreme importance in human nutrition. Clinical reports indicate its valuable therapeutic effects in the treatment of a large number of deficiency diseases and disorders.

"EFLEX"

"Eflex" is also a concentrate of Essential Unsaturated Fatty Acids, but in oil, supplied as 6.76 mimim perles. It has 20% Soy Bean Lecithin added as a source of readily available phosphorus. "Cataplex F" should be recommended rather than "Eflex," for the patient intolerant to oils.

"Vitamins with their Natural Synergists that

"CATAPLEX F"

"EFLEX"

Produce Natural Results . . ."

TEAR OFF THIS SHEET AND MAIL TODAY FOR FURTHER INFORMATION

Vitamin Products Company
Milwaukee, Wisconsin

War Conference

The medical, surgical and industrial hygiene experts who are so ably safeguarding the well-being of more than twenty million industrial workers have agreed to pool their knowledge and exchange their experiences regarding the many new and complex problems of today's wartime production. For this purpose their organizations, which include the American Association of Industrial Physicians and Surgeons, the American Industrial Hygiene Association, and the National Conference of Government Hygienists are combining their annual meetings in a four-day "War Conference", to be held at Rochester, New York, May 24-27, 1943.

Among the problems to be discussed from a practical viewpoint are: The mass entry of women into industry; older-age employees, with their various associated problems, proper placement and employability considerations of the 4F rejectees; rehabilitation and proper employment of those already discharged from the military services because of disabling conditions; toxic and other hazards from new substances, new processes, and the use of substitute materials; absenteeism; fatigue; nutrition; effects of long hours; increased industrial accident rates; advances in the treatment of illnesses and injuries and many others.

This joint meeting will be a report on the state of the nation, by the men who know, in matters of industrial health. Dr. William A. Sawyer, Medical Director of Eastman Kodak, is general chairman; Dr. James H. Sterner and Lieutenant Commander J. J. Bloomfield are arranging the programs for the industrial hygienists.

Physicians and surgeons, hygienists, engineers, nurses, executives—all who are interested in the problems of industrial health and their solution—are invited to attend; no registration fee is required.

Invalid Diets and Food Rationing

Ration Order 13, issued by the Office of Price Administration under date of February 9, 1943, is of interest to all who are concerned with diets for invalids. This order covers all canned, dried and frozen fruits and vegetables. Article II, Section 2.5 of the order reads as follows:

"Consumers who need more processed foods because of illness may apply for more points. (2) Any consumer whose health requires that he have more processed foods than he can get with War Ration Book Two, may apply for additional points. The application must be made on OPA Form R-315, by the consumer himself or by mail. The application can be made only to the board for the place where the consumer lives. He must submit with his application a written statement of a licensed or registered physician or surgeon, showing why he must have more processed foods, the amounts and types he needs during the next two months and why he cannot use unrationed foods instead. (b) If the board finds that his health depends upon his getting more processed foods, and that he cannot use or cannot get unrationed foods, it shall issue to him one or more certificates for the number of points necessary to get the additional processed foods he needs during the next two months."

The application form referred to, OPA Form R-315, is apt to be somewhat confusing to patients. It is titled "Sugar Special Purpose Application" and was developed primarily to meet the need for home canning. It is being used temporarily until a more adequate form can be gotten out. It is anticipated that the procedure indicated in Section 2.5 may be changed somewhat in the future, in which case due notice will be provided.

Pepsencia
REG. U. S. PAT. OFF.
WITH VITAMIN B_1

The *old* and the *new* join therapeutic forces

PEPSENCIA, the original essence of pepsin which has served physicians continuously since 1879 in the treatment of gastric disorders, now joins therapeutic forces with the modern vitamin B_1.

To this combination PEPSENCIA brings the essential organic principles of the gastric juice with the entire soluble glandular constituents in their normal association. Vitamin B_1 is present in an amount of 1,000 I. U.—thiamine chloride 3 mgs.—to each fluid ounce or 125 to the teaspoonful.

PEPSENCIA with vitamin B_1 is highly agreeable to all conditions of appetite and age.

Originated and made by **FAIRCHILD BROS. & FOSTER** NEW YORK, N. Y.

HAY FEVER Can Slow Down War Workers

Combat this by desensitizing with National Pollen Antigens

2,600,000 cases of hay fever were recorded in 1942. Loss of sleep, loss of energy, and absenteeism must be reduced.

Effectual resistance may be attained by desensitizing with National Pollen Antigens. Treatment should be instituted before pollination has begun. However, perennial treatment to maintain a continuous state of desensitization is the method of choice.

National Allergenic Extracts are prepared by extracting selected pollen with a buffered salt solution, following the method of Coca. Allergenic extracts are standardized, one unit being equivalent to 0.00001 mg. of nitrogen.

Diagnostic test extracts and therapeutic extracts are available for specific pollens. Stock treatment sets to cover predominating grasses and pollinating plants immediately available. Selected mixtures are also supplied for special cases. Write for literature concerning National Pollen Antigens to The National Drug Company, Dept. J, Philadelphia, Pennsylvania.

National Drug Company

BIOLOGICALS, BIOCHEMICALS, PHARMACEUTICALS FOR THE MEDICAL PROFESSION

Illinois Takes Lead in New Service to Mental Patients

Plans are being completed, in collaboration with universities and colleges, for the expansion and standardization of psychological service to patients of the eleven state mental hospitals, under the supervision of a chief psychologist to be appointed for the next biennium. Rodney H. Brandon, state director of public welfare, stated that this service would augment the psychiatric and social services which had become a part of the system of treatment and would remove the state hospitals further from being merely custodial institutions. He said further that Dr. Harry R. Hoffman, state alienist, had already placed professional psychologists in most of the hospitals and had made arrangements with the University of Chicago, Northwestern University, MacMurray College and other institutions to reinforce the staffs by assigning graduate students and interns in psychology, as is being done at the Elgin State Hospital. The staff of this hospital has included a psychologist since 1931, when Dr. Charles F. Read, then as now managing officer, appointed Dr. Phyllis Wittman. Today Dr. Wittman has an assistant, two graduate students serving their internships as aides, and a research fellow from the Social Science Research Council. To date the hospital has given training to twenty-eight graduate students in psychology.

Such an affiliation, Mr. Brandon explained, profits the university by broadening and enriching the program offered to graduate students and enables the students to use the abundant material at hand in studies leading to the degrees of master and doctor in psychology. It also prepares them for positions as clinical psychologists.

United Jewish Appeal

More than one hundred Manhattan and Bronx physicians attended the annual dinner of the Physicians Division of the United Jewish Appeal for Refugees, Overseas Needs and Palestine, and pledged their support in the drive "to heal the wounds of those who have suffered most severely from Hitlerism, the greatest disease in our time." The assistance which the United Jewish Appeal agencies can extend to distressed Jews overseas, said Dr. Iago Gladston, executive secretary of the Public Relations Bureau of Medicine, "must keep in step with the march of the United Nations armies. As new areas are liberated by the Allies, the United Jewish Appeal must be ready to seize the opportunity to aid the needy in those regions, so that they, too, may live to see the day of victory." Other speakers at the dinner included Commander Julius Frederick Neuberger, Commandant of the Third Naval District, and the Rev. Dr. David de Sola Pool.

Dr. Burrill B. Crohn, chairman, in announcing the list of 1943 officers of the Manhattan and Bronx Physicians Division, said that agencies of the United Jewish Appeal provide food, clothing, shelter and medical supplies to needy Jews overseas; contribute to the defense of Palestine, and maintain aid for refugees in the United States. Dr. Emanuel Libman, Dr. Abraham J. Rongy, Dr. Bernard Sachs, and Dr. Herman Schwartz, were honorary chairmen, and Dr. Harold B. Davidson was vice-chairman.

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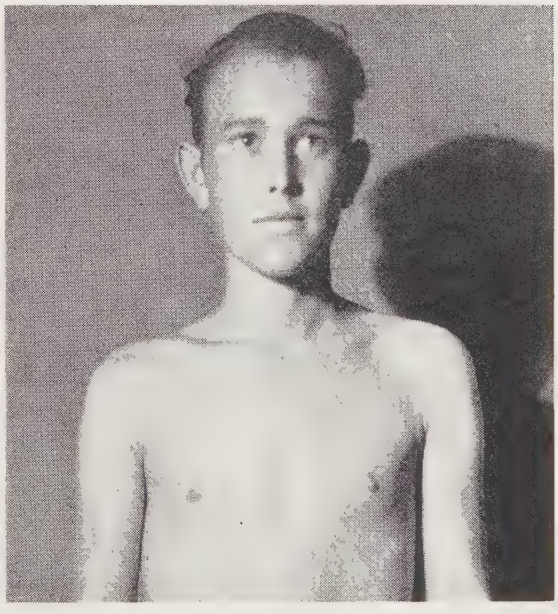

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The Copernican Quadricentennial

America's most distinguished scientists, scholars, and educators comprise the membership of the Copernican Quadricentennial National Committee which has made arrangements for nationwide commemorative exercises honoring the great Polish astronomer, Nicholas Copernicus, on May 24th, the four hundredth anniversary of his death and of the publication of his epochal treatise, *De Revolutionibus Orbium Coelestium,* which revolutionized man's conception of the solar system and ushered in the era of modern science. The national climax of the Copernican Quadricentennial will take place at a meeting to be held in Carnegie Hall, New York, on May 24th, when distinguished scientists from many parts of the nation will pay tribute to Copernicus and his contribution to scientific discovery and truth. Dr. Harlow Shapley, national chairman of the committee, will preside at this meeting. One of the important international features of the program will be a message broadcast from London, with greetings from the president of the British Royal Society.

The Copernican Quadricentennial is sponsored by the Kosciuszko Foundation, 149 East Sixty-Seventh Street, New York. Dr. Stephen P. Mizwa, executive director of the Foundation, is national secretary of the committee. Hundreds of universities and colleges in North and South America, and private and church schools, planetariums, observatories, libraries, and various civic and local groups will participate in the exercises. At least three states, New York, New Jersey, and Pennsylvania will observe May 24th officially as Copernicus Day. Many world-famous names are among the members of the committee, whose number now totals one hundred and seventy-five. Included in the list are a number of Nobel Prize winners.

Physician's Handbook on Rheumatic Fever

A thirty-two page clinical handbook, entitled *Rheumatic Fever in Children—its Recognition and Management,* which was written for the practicing physician, has been issued by the Metropolitan Life Insurance Company. This handbook assembles under one cover the modern concepts of the disease; its nature, diagnosis and prognosis, and the individual and community problems involved in the care of the patient. A group of distinguished clinicians and the following organizations assisted in its preparation: the American Heart Association, the American Academy of Pediatrics, the Children's Bureau of the United States Department of Labor and the United States Public Health Service. Other educational material has been developed by the Company in connection with its national program to reach the general public and the medical profession with information on this disease.

Single copies of the handbook are being made available to physicians, without charge, chiefly through the sixteen thousand field representatives of the Metropolitan Life Insurance Company. Physicians who wish a copy, and who have not secured one by June 1st, should write to Dr. George M. Wheatley, Assistant Medical Director, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y.

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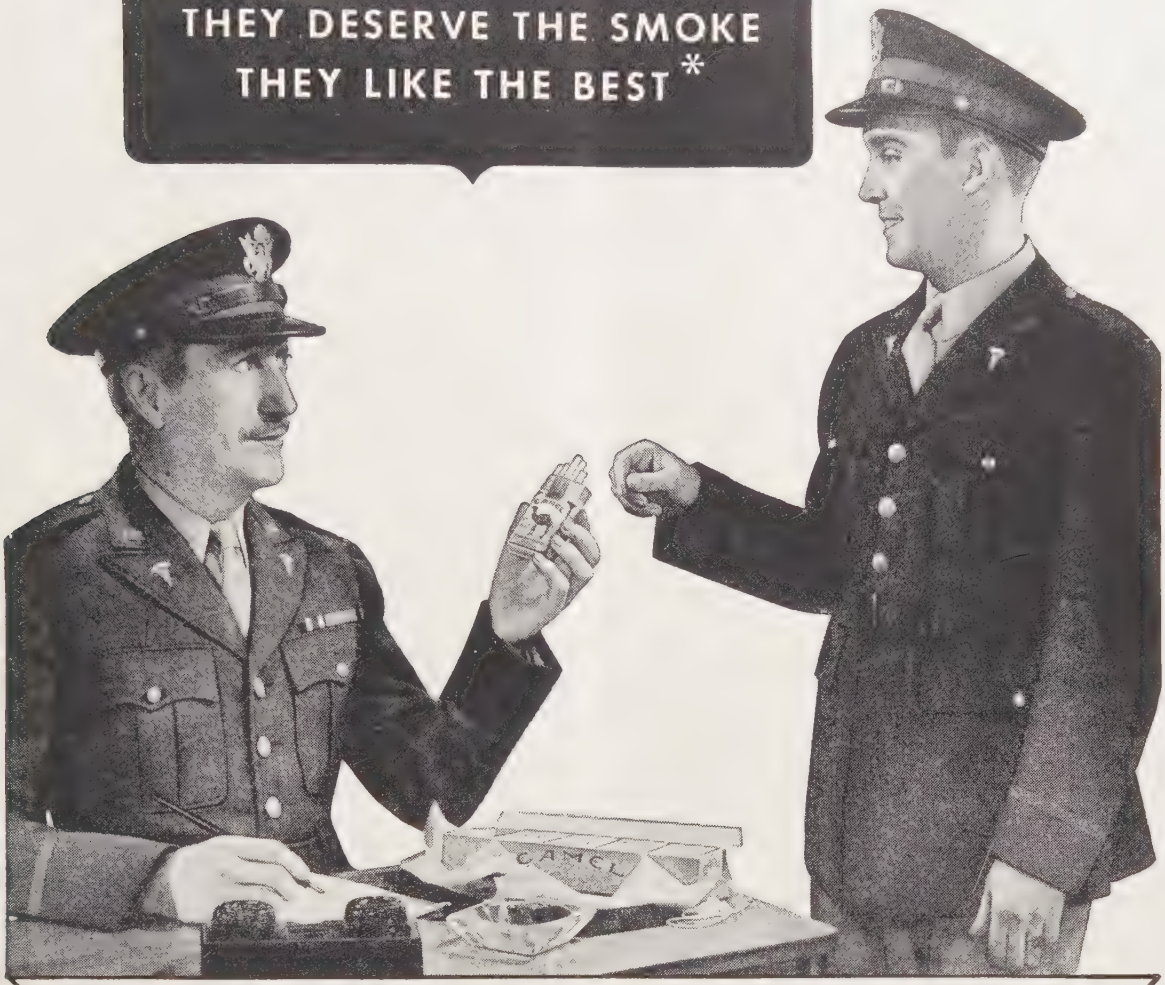

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Our Contributors

Emil Glas, M.D., New York, N. Y., was graduated in medicine from the University of Vienna, Austria, and from 1920 to 1938 he was professor of nose and throat diseases, bronchoscopy and esophagoscopy at that university. He was also chairman of the Vienna Laryngological Society for four years and coeditor of the handbook for nose and ear diseases by Denker and Kahler. He has contributed many articles to medical journals and monographs in this field and has written books on head colds and headaches of nasal origin. Dr. Glas came to America in 1938 and one year later obtined a license to practice in New York State. He is now an associate physician at Stuyvesant Polyclinic, New York, and is visiting assistant to the Lincoln City Hospital and assistant attending to the Postgraduate Hospital in the Out-Patient Department. He has invented a number of instruments for nose and throat work and introduced a tuning fork test for sinus diseases. He has published many papers on bronchoscopy and esophagoscopy and the extraction of foreign bodies from these areas. Some of his papers have dealt with embryology and histology.

* * *

John N. E. Brown, M.D., Toronto, Canada, received his degree in medicine from the University of Toronto Faculty of Medicine in 1892, and has now retired from active practice. He has always taken an interest in medical history and has made many valuable contributions to the literature, in the form of books, and articles published in scientific journals. Some of the titles are: *Oliver Goldsmith and His Medical Age, Oliver Wendell Holmes, The Evolution of Law and Government in The Yukon, A History of Hospitals, Folk Medicine,* etc. He was formerly president of the Toronto Medical History Club.

* * *

Alfred J. Cantor, M.D., Flushing, N. Y., was graduated from Syracuse University College of Medicine in 1936, and has received the honorary degrees of Phi Beta Kappa, Phi Kappa Phi, and Alpha Omega Alpha. He is especially interested in proctology and gastroenterology. He is connected with the surgical clinic at Flushing Hospital, the gastroenterological clinic at Queens General Hospital and the proctological clinic at the Hospital for Joint Diseases. His hobby is magic, especially of the manipulative and mind-reading variety. After two years of experimentation, he has recently completed a radically new type of sigmoidoscope which was presented at the National Gastroenterological Association Convention in New York.

* * *

Channing W. Barrett, M.D., F.A.C.S., Chicago, Ill., received his degree in medicine from Wayne University College of Medicine, Detroit, and for two years he was resident in surgery, gynecology and obstetrics at the Marion Sims Hospital, Chicago. He was on the teaching staff of the University of Illinois for thirty-two years, twenty years of which time he served as head of the department of gynecology. He was formerly a member of the staff of the Cook County Hospital as gynecologist and obstetrician where for many years he was chief of the gynecological department. He is now head of the department of gynecology at the Chicago Polyclinic and Henrotin Hospital, and is on the staff of the New Wesley Memorial, Augustana and Columbus Hospitals. He served in France during the first world war and was a recipient of the *Medaille d'Honneur.* He has written extensively on gynecological and obstetrical subjects, and his research has been along the line of pelvic floor pathology, genital fistulæ and pelvic supports. He is interested in farming and orcharding and once had a commendable stable of Percheron horses and Guernsey dairy cattle. He was enthusiastic about teaching and his clinical work up to the time of reaching the age limit, and is now doing more writing.

* * *

Burton Chance, M.D., Philadelphia, Pa., was graduated in medicine from the University of Pennsylvania School of Medicine, Philadelphia. He is a member of local and state medical societies and is a Fellow of the American Medical Association. His practice is limited to ophthalmology.

* * *

Herman Goodman, M.D., New York, N. Y., was graduated from the College of Physicians and Surgeons, Columbia University, in 1917. He served with the U. S. Army during the first world war. His interests have ranged from dermatological diagnosis, physiotherapy, particularly ultraviolet radiation in skin diseases, to the pharmacy of prescription writing in cutaneous physiology and pathology. He is a dermatologist and has contributed many articles to this and other journals on topics relating to his specialty.

* * *

Edward Podolsky, M.D., Brooklyn, N. Y., was educated at Columbia University and received his medical degree from Boston University School of Medicine in 1929. He served his internship at Cumberland Hospital, Brooklyn. He was formerly a member of the medical staff of the Flower and Fifth Avenue Hospital and the New York Medical College, and is now on active duty in the Medical Corps of the U. S. Army, serving with the rank of captain.

* * *

The Honourable William Renwick Riddell, LL.D., D.C.L., Toronto, Canada, is the King's Senior Puisne Justice in the Court of Appeal for Toronto. He was a student of medicine for four years in the English fashion. He gave up medicine for a professorship in mathematics and after a few years, abandoned that for the study of law. He and Sir William Olser were great friends and Osler offered him an honorary M.D. from Oxford. He is an Honorary Fellow of the Academy of Medicine, Toronto, and a Fellow of the Royal Historical Society.

* * *

Solomon R. Kagan, M.D., Roxbury, Mass., was graduated from the University of Dorpat Faculty of Medicine, Russia, in 1917. He was physician to the Red Cross Hospital in Constantinovsky. He was formerly a member of the staff of the Jewish Memorial Hospital, Roxbury, Greater Boston Medical Society, and American Medical Association. He is the author of *Jewish Contributions to Medicine in America* (1934), *Life and Letters of Fielding H. Garrison* (1938), *Leaders of Medicine* (1941), and numerous articles on medical, historical, bibliographical and literary subjects published in the Russian, German, Hebrew, Yiddish, and English languages.

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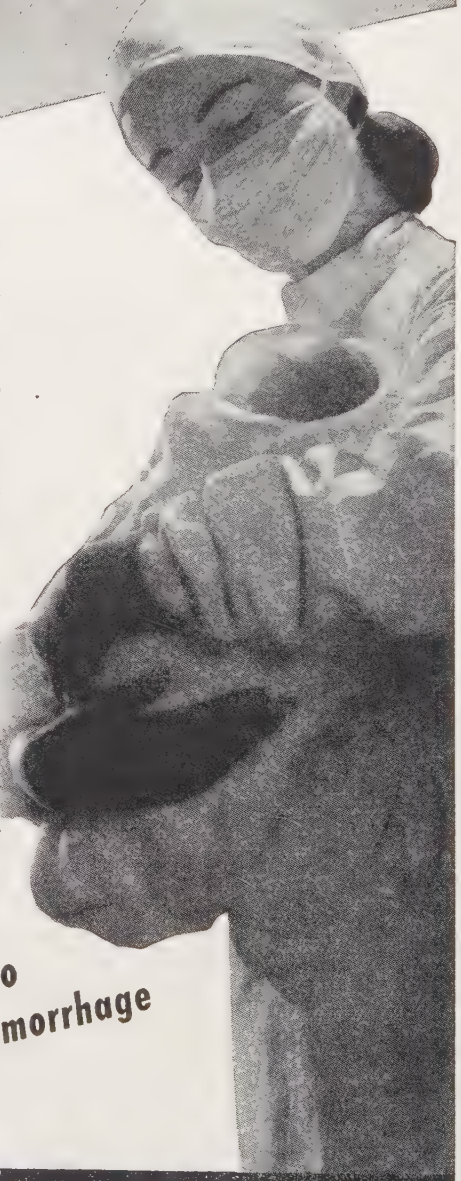

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HERNIATION THROUGH THE PELVIC FLOOR DURING PREGNANCY

CHANNING W. BARRETT

Chicago, Ill.

It might be necessary, in order to complete the picture, to include those cases of pregnancy occurring in the presence of herniations through the pelvic floor which existed previous to the onset of pregnancy. Either condition might precede the other. In cases of pelvic floor herniation and ventral herniation associated with pregnancy, it is quite common for pregnancy to antedate the full herniation, although the opposite order may obtain. In cases of umbilical and inguinal herniation of the gravid uterus the herniation is more likely to antedate the pregnancy, although there are certain rare exceptions.

In cases of the more common herniation, that which occurs through the pelvic floor, the term "prolapse of the uterus" has been inaccurately applied, resulting in misunderstanding and neglecting the structure through which the herniated structure escapes from the abdomen. An equally erroneous impression is conveyed of the structure that leaves the abdomen to assume this outside position. In the first instance, the herniated structures pass from within the abdomen to the external position through the carefully constructed although weakened lower wall of the abdomen, the pelvic floor. This closing structure of that portion of the abdomen has all the importance and functions of any portion of the abdominal wall of similar proportions, plus added responsibilities because, for two-thirds of each day, it is compelled, by the upright position, to bear the brunt of the burden of resisting gravity which has been transmitted to it. Then, too, it is given the task of carrying the terminal portions of the alimentary, genital, and urinary tracts, and guarding their functions. When the first observers noted extrusion, not knowing what the pelvic floor was or even that there was a pelvic floor, called such a phenomenon "prolapse". Custom had established this nomenclature before the important researches of anatomists had recorded for us the detailed changes from the tail muscles to the blended muscles, called levator ani muscles, these fusing in the median line and around the tracts finding exit here, to make the efficient pelvic floor, this taking its place with all other parts of the abdominal wall to become a closed cavity.

Therefore, in spite of all this fine accommodation to create a good support, extrusions became unknowingly the lowly "prolapse", and so the inaccurate and inapt term has stuck like a plaster to a sore back. So the uterus, finding exit at the inguinal, umbilical, or ventral region, constitutes a herniation, but when it takes the more common route out of the abdomen through the lower abdominal enclosing wall it is branded "prolapse" of the first, second and third degree and loses all relation to the extrusions which escape through other portions of the abdominal wall. They are hernias, this is "prolapse", no cognizance being taken of the important anatomical structure.

When we call a condition a hernia, one thinks of an abdominal wall defect; when we say "prolapse", one thinks of the defective extruding structure which must be repaired. The uterus or rectum has been removed thousands of times with nothing being done for the hernia.

Again, herniation of the uterus, gravid or nongravid, is an incomplete term and may not even be a part of the socalled phenomenon. Usually an opportunity for herniation is created through an injury or weakening of the pelvic floor, through childbirth, the passage of a tumor, episiotomy or congenital defect. The muscles are separated, taking away from the structures the support which they should furnish, and by their separation leaving an opening through which the adjacent abdominal organs may herniate, impelled as they are by their own weight, by intraabdominal pressure, by tumors, and so on.

Definitely, then, we have a substantial pelvic floor fairly adequate for support when uninjured, but, nevertheless, subject by its construction to many herniations through its clefts, enlarged as they are by injury. The vaginal tube passing through the pelvic floor is safeguarded by its oblique course, so that its axis forms a right angle with that of the superimposed and horizontally placed uterus.

Many conditions favor such weakening of the ligaments or increase of weight as to make the uterus take a little lower position. This may take place with little or no change of the axis and with little or no tendency to herniation. This downward but not outward tendency might reasonably be called prolapse to correspond to the nomenclature of downward movement of other organs in the abdomen. There is, however, a tendency of the axis to become more vertical and then to come into line with the axis of the vagina. Nevertheless, decided herniation seldom takes place unless the pelvic floor has been damaged, as evidenced by the fact that women who have not borne children seldom have pelvic floor herniations, and on these rare occasions there may be some other accountable cause for the weakening of the pelvic floor. The effects of trauma that pave the way

for herniation are not all upon the pelvic floor. Added to these are injuries to the fasciæ which support the urethra, the bladder, the rectum, the vagina, and the uterus. The ligaments, fasciæ, and peritoneum supporting the uterus and upper vagina are overstretched and traumatized so that involution is delayed and perhaps never completed.

A patient after childbirth, with pelvic structures much heavier than normal and with carrying structures much weaker than normal, often undertakes, when not supervised, or when necessity urges, or when restlessness impels, to be on her feet a good part of the day, perhaps cooking and tending to various household duties. As a result, in some cases a large herniation takes place in a few weeks; sometimes in a much longer time.

It is not the purpose of this paper to trace the herniation through all its phases but to deal more particularly with herniations during pregnancy.

We would again point out the exact similarity of herniation here to that in the inguinal or ventral region. With the pelvic floor intact and pelvic structures properly supported, the pelvic structures lie above the pelvic floor, in other words, in the abdominal cavity; after a well developed herniation they are in large part below the pelvic floor, that is, outside the abdomen. This meets all the requirements for an authentic hernia. Why call it prolapse? This is a hernia of many structures. Why call it "prolapse of the uterus"?

Take a woman who is ripe for herniation but yet not pregnant, and we have a patient with herniation of the urethra, the bladder, the rectum, and perhaps, to a lesser extent, of the uterus; also perhaps of the posterior peritoneal pouch, and the tubes, ovaries and intestines. How frequently has one gone wrong by calling this condition prolapse of the uterus. The uterus could be removed and worse conditions and herniations would remain.

Examination may show anything from a mild form of herniation to a third degree stage of herniation, and if the latter, the hernia may be nonreducible at the time. If irreducible, the hernia may rapidly become dangerous, but with the knee chest position, the Trendelenburg position, manipulation, lubrication, manual efforts under water, etc., and keeping the bladder empty, one is more than likely to be successful. On the other hand, there may be a considerable preparation for herniation without its being very noticeable.

Pregnancy may take place. Very early symptoms are aggravated. The pelvic structures become congested and heavier; a softness, a succulence and edema take place. All structures help to increase the amount of herniation. The change in size takes place more in the uterus, so if this structure has lagged behind the other herniations it is apt to overtake them. If herniation is not complete and the body of the uterus has not passed the constricting ring, its very growth may be a factor in its growing upward from the pelvic floor, reaching such a size that it rides above the pelvic brim. With this upward trend the herniation may be lifted and bladder and rectum may be relieved. Pregnancy may continue to term without difficulty, or it may continue to term by reason of much supervision and care. However, if the hernia has reached the third degree stage before pregnancy takes place, or if this takes place by reason of the less favorable conditions for support, the condition rapidly becomes serious. If it reaches the point where return cannot be made promptly, changes are taking place rapidly; growth, swelling, edema, and inflammation may increase the bulk of the herniated structure faster than any conservative treatment can influence it favorably. There are such great advantages in a rapid return to normal, if return can be accomplished, that a reasonably careful effort should be made.

As strangulation is taking place, the operator should have in mind what is occurring. The cervix has now come to occupy the apex of the hernia. The vagina is inverted and runs from the vulva to the cervical apex of the hernia. The bladder is outside and is felt as a bulging, thickened, doughy mass on the anterior vaginal wall. The rectum and perhaps the posterior culde-sac may be felt on the posterior vaginal wall. The bladder action, especially, and perhaps the bowel action also are much affected. Bladder retention may be considered and gangrene and rupture are not uncommon. The ligaments are put on the stretch as they come down beside the uterus and by reason of the stretching and pressure the blood supply which they carry is cut off; the veins, being more compressible, are first affected.

The ureters are drawn down with the cardinal ligaments so that they are greatly stretched, compressed, and kinked and are a part of the herniation. It will then be seen that the ureters and kidneys are subject to obstructive accumulations of urine and perhaps pus and blood.

Death of the ovum and separation of the membrane are not uncommon. Gangrene of the uterus may take place. In no case has pregnancy been known to go to term outside of the abdomen. The harm which is almost certain to come to the mother calls for prompt treatment. If the herniation cannot be reduced promptly the uterus should be evacuated; if the presenting ovum parts demonstrate that the ovum cannot be saved, it should be removed without first making an effort to return the uterus to the abdomen. After the emptying, careful efforts should be made to reduce the herniation. A more favorable time should be awaited for a radical operation, but sepsis of the uterus might call for an immediate vaginal hysterectomy. In that case one would hardly be warranted in doing anything more than was necessary, leaving the hernioplastic operation for a later date.

The damage done to the bladder wall, the rectum, the uterus, the ureters and the kidney, all call for extreme care in neglected cases, lest tissues be injured and hemorrhage and sepsis take place.

The efforts to treat this condition under the head of "prolapse of the uterus" have made so sorry a mess of its pathology, that it has seemed warranted to place it squarely on the basis of fact along with other hernias through the abdominal wall, as "herniation of the pelvic organs through the pelvic floor".

When the favorable time arrives for hernioplastic repair, the two levator muscles should be exposed and united substantially between the rectum and the vagina, leaving a narrowed space behind for the passage of the rectum and a narrow space in front for the passage of the vagina. Redundancy of the vagina should be reduced to the limit and the vagina constructed to pass from the vulva to the uterus in an upward and backward direction; and the uterus, if retained, should

be left at about right angles to the vagina in a fundus forward, cervix backward, horizontal position. If it is necessary to remove the uterus the vagina should be well attached to the sacrouterine broad and round ligaments.

Seldom will it be found necessary to remove an organ except for its own pathological condition and seldom, if ever, will the removal or obliteration of the vagina be required. If it can be said to have a place at all, it is not in childbearing women or in those who are past the childbearing age but still retain a capacity for connubial partnership, but for the very old and feeble with a high degree of inoperability, who are caught with chronic troublesome pelvic herniation, perhaps irreducible, with bladder and kidney sepsis, and perhaps uterine and peritoneal septic involvement.

Important Points Emphasized

1. The pelvic floor is an essential part of the enclosure of the abdomen wall.
2. Extrusions through the natural opening through the pelvic floor are hernias; pelvic herniation in front and rectal herniation behind.
3. Pelvic herniation instead of "prolapse of the uterus".
4. Pregnancy rapidly converting a threatened or partial hernia into a complete hernia.
5. A complete hernia accompanied by pregnancy if unrelieved rapidly going on to strangulation of vagina, bladder, ureters, ligaments, uterus, rectum, tubes and ovaries, and possibly other structures—all favoring danger, sepsis, and possibly some of them causing uremic poisoning.
6. The danger of separation of the ovum, death of the fetus, of abortion or troublesome retention of all or parts of the ovum.
7. The great improvement that may be expected toward normality if the herniation can be reduced and the pelvic contents held in position.
8. The great advantage of delaying radical hernioplastic operations until this normal condition has been attained.
9. The increased opportunities for conservative operation, if retention is sought before operation is performed.
10. Conserving the bladder at all times of life and the vagina at nearly all times of life, but for different reasons.
11. In repair of pelvic floor herniation, Le Forte conceived the idea of reducing the protruding mass and closing the vagina, not by dealing with the pelvic floor supporting structures, but by obliteration of the vagina. When, however, we consider at what lengths surgeons have gone to make a poor substitute for a vagina, it seems perfectly legitimate to protest the removal of a perfectly good vagina, whose owner may still retain notions of its usefulness.

6 North Michigan Avenue

PRURITUS ANI

ALFRED J. CANTOR
Flushing, N. Y.

The syndrome of pruritus ani has suffered from the same difficulties that long confused the syndrome of epilepsy. Pruritus ani is no more a disease than is epilepsy. Both are symptoms. In the former, itching is the chief manifestation, while in the latter the outstanding manifestation is the convulsion. Just as certain cases of epilepsy are due to brain tumor, syphilis, cerebral trauma, etc., so certain cases of pruritus ani are due to Oxyuris infestation, allergy, eczema, chemical irritation, rectal pathology, etc. Further, just as in certain cases of epilepsy the basic pathology cannot be determined, so in certain insatnces of pruritus ani the etiology cannot be determined by present diagnostic methods.

For those cases without evident etiology I would suggest the term "cryptogenic pruritus ani". This is more suitable than idiopathic pruritus ani, for the latter would indicate a disease without a cause, a type of spontaneous generation. Cryptogenic pruritus ani, in contrast, signifies simply a disease of unknown (i.e., undetermined) etiology. In this group would be classified all cases of undetermined etiology only after exhaustive general and local examinations.

All other cases would be classified as "secondary pruritus ani", and thus there would be only two all-inclusive groups, cryptogenic and secondary. The importance of such a classification is quite obvious. First, it makes evident the fact that there are certain cases of pruritus ani which, despite exhaustive study, must ultimately be placed in the category of undiagnosed etiology. These cases of cryptogenic pruritus ani represent failures of our diagnostic armamentarium. Treatment, of necessity, must be empirical in all such cases. Such a classification renders exhaustive study and complete examination, both local and general, an absolute necessity before cataloguing of each individual case. Further, this classification would tend to obviate much of the confusion in the literature on the diagnosis, etiology and therapy of various forms of pruritus ani. Thus, both directly and indirectly, it provides a practical guide not only for diagnosis but also for therapy.

Etiology

A review of recent literature reveals a variety of concepts with regard to the etiology of pruritus ani. In terms of our classification all subsequent discussions, unless otherwise stated, will refer only to secondary pruritus ani.

Allergy is commonly (1, 21, 6, 10, 19, 18, 26, 3) a prominent consideration in etiology. It is accepted that allergic hypersensitivity is basically hereditary. Of course susceptibility to a particular allergen may be either inherited or acquired. The most common food allergens include egg, milk and milk products, wheat and wheat products and chocolate. Ingestion of a large quantity is unnecessary, for a mere trace of the offending food may produce severe symptoms. Drugs may bring on attacks, and occasionally nonproteins such as alcohol. It is noted that itching and increased irritabil-

ity are characteristic of all allergic conditions (21). Some authors (6) conclude that the vast majority of cases of essential pruritus (cryptogenic pruritus) of the anus and vulvæ are due to eczema. Eczema is a manifestation of skin hypersensitiveness, i.e., the patients' heredity. The activating cause, however, may be chemical, (drugs, dyes), clothing, hemorrhoids, diet, heat, perspiration and friction, and atmospheric conditions. Thus, these authors would seem to state that the vast majority of cases of pruritus ani, in which the etiology cannot be determined (cryptogenic), are actually on an allergic basis with one of a variety of precipating external causes. In such a concept these cases should actually be classified as secondary pruritus ani.

Inhalants must also be mentioned as potential allergens. They are probably not of great importance in the consideration of allergic pruritus ani.

Positive patch-test reactions to solutions of indol, skatol and fecal emulsions from patients with active pruritus ani are considered to be evidence of a specific sensitivity in these cases (18). Constant fecal soiling may thus account for recurrence of symptoms after symptomatic relief by sensory nerve block.

It should be noted that the histopathological picture in pruritus ani is comparable to that of allergic skin manifestations (19). The acute onset is characterized by cellular infiltration beneath the rete Malpighii, spongiosis among the prickle cells, parakeratosis and beginning lichenification of the stratum corneum. The chronic picture reveals acanthosis, the papillary bodies are narrowed and later show fibrous change. Spongiosis decreases and lichenification increases. Hair and sebaceous follicles are plugged. Sweat pores of both eccrine and apocrine glands remain patent.

Buie (3) believes that the most likely cause of skin changes in pruritus ani is the direct effect of bacteria and their toxins or both. Often there is a direct connection with trichophytic disease elsewhere. An important factor in many cases is fungous infection (5, 10). Indeed, it is suggested that inasmuch as twenty percent of all cases of pruritus ani are associated with mycotic infections one-half strength Whitfield's ointment should be employed as routine treatment (18). Winfield demonstrated the streptococcus fecalis and colon bacilli in ninety percent of anogenital pruritus (26).

Oxyuris infestation is a common cause of pruritus, particularly in children (13, 12, 10, 4). Indeed, the threadworm is said to be the most common cause in children (13, 4). One or more of these worms may be seen at the anus or through the proctoscope. They tend to come from higher up into the rectum or anus toward evening. Oxyuriasis is produced by Oxyuris vermicularis development in the intestine. The female worms wander out of the anus to cause pruritus. The eggs are carried on the fingers to the mouth, producing autoinfection. Eggs may be ingested with contaminated food or from soiled clothing. The anal mucous membrane may be congested, studded with small worm bites, and is often covered with blood-stained mucus. The rectal mucosa may show a catarrhal inflammation. Diagnosis is by finding worms or the eggs in material scraped from the verge or perianal area. The "N. I. H." swab consists of a glass rod with a one inch square of cellophane folded over one end and held by a rubber band. The cellophane is used to scrape the perianal skin. A drop of tenth-normal sodium hydroxide is placed on a glass slide, the cellophane is placed on the drop and released by removing the band with forceps, and is then flattened on the slide and covered with a cover slip for examination.

Pediculus pubis is said to be the most common parasite in the experience of one author (4), who further states that a fungus or yeast is a very rare cause. Scabies is also offered for consideration as a possible etiological factor.

Mechanical factors are of great importance in every case. Skin irritation may be due to excessive moisture, lack of cleanliness, excessive sweating, or may originate from within the bowel as a result of rectal or anal canal disease. Mucus, pus, blood or mineral oil seepage may produce local mechanical and perhaps chemical irritation. Rectal constipation with imperfectly emptied rectum, even after apparently normal evacuation, may allow the passage of frequent flatus with mucus. A fecal mass resting on the pile-bearing area may produce hyperemia and thus produce a slight excess of mucus (4). One author (18) found rectal constipation with fecal soiling to be so frequent that a rectal enema after defecation and at bedtime was advocated as routine treatment. Another writer states (14) that rectal constipation is the most common cause of pruritus ani. In a series of 131 cases (109 males and 22 females) digital examination revealed an ampulla filled with feces in 114 cases, in spite of no history of constipation.

Local irritation by clothing is another factor for consideration. Anal skin tags increase the likelihood of lack of cleanliness and probably favor excess sweating. Dyes in clothing, irritating soaps or starches used in washing of undergarments or baby diapers, the wool content of clothing, or synthetic fabric sensitivity must all be included in the consideration of local mechanical or chemical irritants.

The action of local sercretions, as sweat, an overalkaline or overacid urine, is probably both mechanical and chemical. In the same category must be included diabetic urine, urine containing calcium or oxalate crystals, and vaginal or fecal discharge. Any of these mechanical or chemical factors, although apparently minor, as excessive sweating, may be followed by scratching and ultimate severe dermatitis, thus inaugurating a vicious cycle. Such cases, when observed in their late stages, would present no obvious etiological factor. They would probably be classified as cryptogenic at that time. Caution must be exercised in the interpretation of bacteriological studies in such cases. Organisms revealed at this stage would be secondary invaders, and although they might further the vicious irritative cycle they would not be of primary causal importance.

The influence of general metabolic changes in the production of general pruritus and pruritus ani is worthy of consideration. The allergic factor has already been discussed. Rare cases are reported with an achlorhydria, diminished vitamin A absorption (Swift), with deficient nutrition of epithelium (4). Lack of vitamin B absorption may produce altered nerve ending sensation.

Retention in the skin of abnormal products of metabolism, as nitrogen retention in kidney disease, may be

(*Continued on page* 303)

Symposium on Historical Medicine

NORTH AFRICA IN THE EARLY HISTORY OF MEDICINE

A Battlefield Today, a Cultural Center Yesterday

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Morocco, Tunis, Fez, Cairo, the Great Sphinx of Gizeh, all these names are, for political and military reasons, in everybody's mind. Rarely, however, do we remember that these regions played an important part in the early construction of durable foundations for medical science. Those names, with which we have recently become familiar under dramatic circumstances, were in ancient times the shrines of medicine and centers of a high civilization, until with the passing of time and the ups and downs of centuries the cultural center of gravity moved to other regions.

Egypt

The former importance of North Africa to medicine is true, first of all, of Egypt. In past centuries, when our historical knowledge was more limited than it is today, Hellas and Rome were considered the cradle of modern civilization. In the meantime, the progress of historical science and understanding has taught us that Western culture has deeper roots, and that the Egyptian influence was of decisive importance.

Egypt was the medical center of the ancient world, says Victor Robinson. The whole manner of life in Egypt, according to Diodorus Siculus, was so regulated that it seemed as though it had been arranged according to the rules of health by a learned physician, rather than by a law giver. The high reputation which Egyptian medicine enjoyed in the ancient world can be seen from Homer's words: "In Egypt the men are more skilled in medicine than any others of human kind." For a physician to have been educated in Egypt was in itself a passport to success.

The father of Egyptian medicine was Imhotep who, although a high official and famous architect, actually practiced medicine, and reached such fame as a physician that in later centuries he was raised to the status of the god of medicine, equivalent to the Greek god of healing, Æsculapius. Imhotep was a contemporary of Pharaoh Zoser, about 3000 B.C. He was born in Ankhtowe, a suburb of Memphis. Imhotep was the trusted vizier of Pharaoh Zofer, and it was probably he who designed for his master's tomb the Step-Pyramid of Sakkarah near Memphis which is generally believed to be the oldest pyramid in Egypt.

His high reputation both as magician and physician, two activities which were closely allied in the time of the Pharaohs, deeply impressed the people of his day. We have no knowledge of Imhotep's particular medical deeds or discoveries. But, as Hurry says, "it is his eminence as a healer of the sick that has given him imperishable fame, and that led eventually to his deification". The temples which were erected in Imhotep's honor were in part hospitals and schools of both medicine and magic.

Our knowledge of ancient Egyptian medicine has been enhanced by the finding and deciphering of old medical treatises, written on rolls of papyrus and, therefore, called papyri. Eight papyri concerning medical, pharmaceutical, and veterinary matters have been preserved thousands of years. The three most important of them, Edwin Smith, Ebers, and Hearst, give a remarkable picture of Egyptian medical practice and pharmacological knowledge long before the Christian Era. The voluminous Papyrus Ebers was copied about 1550 B.C. from an original which must have been one thousand years older. These are probably the earliest known truly scientific writings anywhere. The Papyrus Ebers contains no less than 811 prescriptions and mentions more than seven hundred drugs from the mineral, vegetable and animal kingdoms.

School of Alexandria

Alexander the Great's chief monument is the city he founded in 332 B.C. on the African shores of the Mediterranean—Alexandria, today the center of Egyptian trade and main port of the British Mediterranean fleet. In the third century B.C. Alexandria became the seat of Greek science and of a famous school of medicine. The Alexandrian library, containing many hundred thousand papyrus rolls, was famous through the centuries. "It is sufficient as a recommendation", wrote the Roman historian, Ammianus Marcellinus (about 320-400 A.D.), "for any medical man to be able to say that he was educated at Alexandria".

The founders of the Medical School of Alexandria were Herophilus, born at Chalcedon, Bithynia, about 300 B.C., and Erasistratus, born on the island of Ceos between 310 and 300 B.C. Herophilus was the first scientific anatomist. He called the first part of the small intestine the duodenum because he found that it was about twelve (duodeni) fingerbreadths long. He was the first to describe the prostatic gland, the ovaries and oviducts, and the first to describe the close connection between peripheral nerves and the brain and spinal cord.

Erasistratus, on the other hand, is called the father of physiology. He described the blood as material for physical processes and the "pneuma" (taken into the body with the inhaled air) as the bearer of all vital energy. There is a famous story about Erasistratus and his diagnostic art. Antiochus Soter, the son of Alexander's successor, Selecus Nicator, fell madly in love with his youthful step-mother, Stratonice. He became sick and melancholy, and no physician could discover the cause of his disease. Erasistratus finally made a diagnosis by noting the sudden leaping of Antiochus's pulse when Stratonice entered the room. He induced Seleucus to consent to a marriage between his son and

Stratonice and thus saved the lover's life. It is amusing to follow Galen's harsh judgments of Erasistratus; he rejected the diagnosis of Erasistratus, because, he said, there was no such thing as a lover's pulse. There is a similar story about Hippocrates who saved the life of the Macedonian king Perdiccas by discovering his unconscious love for Phila, a former wife of his father Alexander.

The followers of Herophilus and Erasistratus formed rival schools, and their continuous competition gave strong impulse to the scientific life of the Medical School of Alexandria.

Constantine of Africa

This monk became the greatest figure in the Medical School of Salerno. Constantine was born in Carthage in 1018 or 1020—hence his surname Africanus. Carthage, after her destruction by Rome, flourished anew as the capital of the Vandal empire. In 697 Carthage was again destroyed by the Saracen, Hassan, a general of Caliph Abdalmalik, and was forgotten for about two hundred years until a part of the town was populated again by the Fatimid caliphs. Carthage was situated on the Gulf of Tunis, protected on the west by the promontory of Apollo (modern Ras Ali al Mekki) and on the east by the promontory of Mercury or Cape Bon (modern Ras Addar). Cape Gamart, the Arab village of Sidi-bu Said and the small harbor of Goletta (La Goulette, Halk el Wad) form a triangle which represents the area of Carthage at its greatest. The citadel, Byrsa, was on the hill of St. Louis.

Constantine was an Arab by birth, but he became converted to Christianity early in life. He visited Babylon to study the medical sciences of the Chaldeans, the Arabs, the Persians and the Saracens, and visited India, Ethiopia and Egypt. He taught medicine during his stay at Salerno. After his friend Desiderius had been elected Abbot of Monte Cassino, Constantine moved to this Benedictine monastery, and devoted himself to the translation of medical works from the Arabic language into Latin until his death in 1087.

Constantine was "a pivotal figure in the history of medicine" (Robinson). He was the first translator of Arabian medical treatises into Latin. Europe realized the importance of the Arabic manuscripts which contained many unknown details of early Greek medicine and science. Arabic-speaking physicians, such as Constantine and Maimonides (among others), were held in high esteem. Through Constantine's translations the works of Rhazes and Avicenna became known in the West. By the Arabic route, the practitioners of that day became acquainted with the writings of Hippocrates. Constantine also translated Galen, whose writings became the guide for Western medicine for several centuries. His translations had an invigorating effect on the medical school of Salerno. The information given in these books was actually put into practice at Salerno, and spread from there all over Europe.

Moses Maimonides

Moses Maimonides, an outstanding physician of his time and a leading Jewish philosopher, was compelled to leave Spain for North Africa at the age of thirteen years on account of the persecution by the Almohades, a line of Mohammedan princes who had conquered Spain and parts of North Africa. He was born in Cordova in 1135, and with his family wandered for ten years from town to town in southern Spain until they settled in the university town of Fez in Morocco. However, in North Africa there was again the constant threat of the fanatic Almohades, and Maimonides settled finally in the Egyption town of Fostat, near Cairo, where he soon won renown as a physician. He became court physician to Sultan Saladin, and later to Sultan Al-Afdal, Saladin's son. Sultan Saladin was one of the most broad-minded and intelligent rulers of his time. He was a deeply devout Mohammedan, but added to his medical staff Jews and Christians as well as Moslems. He admired Maimonides and gave him the opportunity to develop his medical qualities on a large scale.

From an autobiographical letter of Maimonides (quoted by Robinson) it can be seen that a busy doctor had a busy day even in his time. Maimonides wrote this letter in September 1100 to ward off the impending visit of his disciple Samuel ben Tibbon who wanted to come to Cairo from France. "I dwell at Fostat", he wrote in this letter, "and the Sultan resides at Cairo; these two places are two Sabbath days' journey (about one mile and a half) distant from each other. My duties to the Sultan are very heavy. I am obliged to visit him every day, early in the morning; and when he or any of his children, or any of the inmates of his harem are indisposed, I dare not quit Cairo but must stay during the greater part of the day in the palace. It also frequently happens that one or two of the royal officers fall sick and I must attend to their healing. Hence, as a rule, I repair to Cairo very early in the day, and even if nothing unusual happens, I do not return to Fostat until the afternoon. Then I am almost dying with hunger. I find the antechambers filled with people, both Jews and Moslems, nobles and common people, judges and bailiffs, friends and foes—a mixed multitude, who await the time of my return. I dismount from my animal, wash my hands, go forth to my patients and entreat them to bear with me while I partake of some slight refreshment, the only meal I take in the twenty-four hours. Then I attend to my patients, write prescriptions and directions for their various ailments. Patients go in and out until nightfall, and sometimes, I solemnly assure you, even until two hours and more in the night. I converse with and prescribe for them while lying down from sheer fatigue, and when night falls I am so exhausted that I can scarcely speak."

Richard the Lion Hearted, during the Crusades is said to have offered Maimonides the position of personal physician if he would accompany him back to England, but Maimonides refused. He died in 1204 at Fostat.

Maimonides's medical writings played an important rôle in the Middle Ages. If we examine them today, we find that his medical teachings are not at all antiquated. In fact, in some respects they are astonishingly modern in tone and content, especially his writings on diet, sexual hygiene and general hygiene. Nine of the medical works ascribed to Maimonides are believed to be authentic. They are the *Directions for Sultan Al-Afdal's Health;* the extremely interesting treatise on poisons and antidotes, particularly on snakebites; the *Aphorisms;* a *Commentary on Hippocrates's Work;* an extract from the writings of Galen; the *Treatise on Sexual Intercourse*, written for the Sultan of Hamat; a treatise on asthma; a treatise on hemorrhoids; and

the *Cause of Accidents*. The frequently quoted *Prayer for Physicians*, a counterpart to the Oath of Hippocrates, originated much later and Maimonides had nothing to do with it. Maimonides wrote in Arabic. In Spain as well as in North Africa and all the way to the East and the Holy Land, there was a chain of excellent hospitals founded and run by Arabian physicians: Fez, Algeciras, Alexandria, Cairo, etc.

Averroes

Averroes (Ibn Roshd), like Maimonides famous both as philosopher and physician, was for some time governor of Morocco. He was born in Cordova in 1126 and died in Morocco in 1198. He was a profound admirer of and leading commentator on Aristotle. One of his widely commented theories was that matter, an emanation from God, is eternal. He was convinced that life existed on each of the heavenly bodies. In Morocco he was also the caliph's court physician. In his medical writings, which have been preserved mostly in Latin translation, he was a strong defender of Aristotle's ideas in opposition to Galens' theories. His therapeutic book *Kitab-al-Kullyat, Book of Generalities*, had a far-reaching influence on generations of physicians.

HOW MEDICAL SCIENCE FOUND A WAY TO LOOK INTO THE RESPIRATORY TRACT

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Nowadays one reads and hears much about how foreign bodies are removed from the depths of the respiratory tract, from the bronchi and the esophagus, as well as from other cavities of the human body—an impossible procedure some decades ago. I believe it might be of interest to relate how this knowledge developed and how difficult and uphill the way was until the goal was reached and the physician was able to "dig" into the dark depths of the human body and finally achieve the good results of today. It took time, energy and hard work to attain this perfection which now enables us to illuminate these hidden places of the body and to extract, with a minimum of danger, the foreign bodies that have slipped into various organs.

Looking into the depths of the larynx and other body cavities was first attempted about one hundred and forty years ago by an obstetrician, Philipp Bozzini. He was the first man to practice endoscopy. He conceived the idea that it might be possible to look into the various cavities of the body by means of light reflected on the surface to be examined. He persevered, however, and finally wrote a book, the title of which was: "The light conductor or a description of a simple instrument and its employment for the illumination of the internal cavities and spaces in the living body". Doctors and scientists of his time read the book and were puzzled. Many did not believe, some laughed about the whole procedure, and in a short time the book met the fate of many other good ideas and inventions—it was forgotten. The internationally known laryngologist, Morell Mackenzie of London, much later described this instrument invented by Bozzini in the following words: "It consisted of two essential parts; first, a kind of lantern; second, a number of hollow tubes for introduction into the various canals of the body. The lantern was a vase-shaped apparatus made of tin, in the center of which there was a small wax candle".

The idea of this physician was certainly one hundred percent good and correct, but the device, naturally, could only be as modern as the times permitted—1807! But the start was made and the Egg of Columbus was found . . .

In an old book by R. Liston, Esq., published in London in 1840, but buried and forgotten, we read the following lines: "Ulcerated glottis: the existence of this swelling may often be ascertained by a careful examination with the finger, and a view of the parts may be sometimes obtained by means of a speculum, such as a glass as is used by dentists, on a long stalk, previously dipped in hot water, introduced with its reflecting surface downwards and carried well into the fauces."

That was an ingenious idea—ingenious because simple (ingenious ideas are always simple)—of a physician a hundred years ago! But again the idea was forgotten. And Dr. Avery's attempts (London, 1850) to look into the larynx with a small mirror were also forgotten, till the time came when the real invention was made.

Fig. 1.—John Czermak of Vienna, inventor of the laryngoscope, trying to look into his own larynx.

That happened like this: The famous singing teacher Manuel Garcia was greatly interested in seeing the vocal cords of his pupils. Therefore, he began to look for a way to accomplish this, and he succeeded. He got a glance into the depths of the larynx and was delighted . . .

And then two Viennese physicians came, Doctors Turck and Czermak, who are called the inventors of laryngoscopy. They were the first to look *systematically* into the larynx. Sometimes they looked much deeper into the windpipe, too, and started removing some small growths from the cords and took great satisfaction in this work. It is interesting to read the story of these two men, because they had a hard and violent struggle to establish their claim to this invention; a struggle which darkened the light they brought into the human body. Czermak was a great scientist, an excellent physiologist, who wrote papers on the semicircular canals of pigeons, on Schopenhauer's theory of colors, and on brain phenomena. Turck was a poor, general practitioner, whose only vocation was exploring the depths of the various organs. And when they both looked into the larynx and obtained a view of the vocal cords, the fight was on. Turck was the agressor and asserted that he had done the whole job. Czermak, the scientist, was

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silent at first, but eventually he hit back. And so the fight continued until the French Academy of Science in Paris, with a Solomon-like judgment, decided as follows: "Both of these men are to receive the prize of the Academy, which is to be divided equally between them." The decision is very interesting indeed and worth being quoted. It reads: "Rapport sur le prix de medicine et de Chirurgie, année 1861. La comission a pensé que les recherches de M. Turck et celles de M. Czermak etaient celles qui avaient le plus contribué a faire de la laryngoscopy une methode usuelle et susceptible de rendre des services dans le diagnostic des maladies du pharynx et du larynx. Elle propose d'accorder a chacun de ces ingenieux observateurs une mention honorable, affecte d'une somme de 1200 francs."

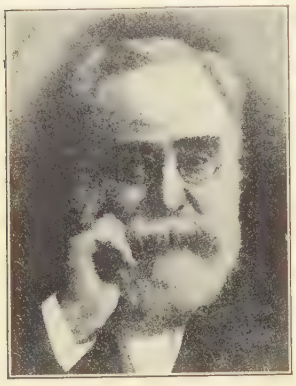

Fig. 2.—Dr. Jacob da Silva Solis Cohen, of New York, pioneer in laryngoscopy in the United States.

That was the end of this fight, but the two inventors never again became friends. Czermak went to Paris and London to demonstrate his method to the international scientific world; the New Sydenham Society translated his papers into English, and Morell Mackenzie and other physicians were delighted to describe their larynx findings in the journals of their time.

In the United States the laryngoscope was introduced in 1858 by Ernest Krakowiczer, of Vienna, who was the first physician to demonstrate the instrument and to show the vocal cords in New York. (*History of Medicine,* by Fielding H. Garrison, Washington, D. C.) One of the first specialists in this country was Dr. Jacob da Silva Solis Cohen, who was born in New York about one hundred years ago. The great surgeon, Dr. Samuel D. Gross, criticized Solis Cohen for leaving the ranks of what he called legitimate practice to become engaged in a narrow specialty. "Why does he devote most of his time to a cubic inch of the human anatomy? Some day, I suppose, we shall have specialists confining themselves to diseases of the navel!" But these ironical words of a great physician did not discourage the pioneers of the new subject. *Per aspera ad astra,* was their slogan: Through darkness to light, or, in this case, better expressed thus: Through light to the darkness (of the body)! And deeper and deeper went their sight and their light till they reached the tissues of the lungs. Many years later, as Dr. S. R. Kagan mentions in his book, *Leaders of Medicine,* the address delivered at a testimonial dinner in honor of Dr. Solis Cohen contained the following words: "He had to subjugate the entire medical world to the acceptance of new methods and to a new science, laryngology. The world owes him an immense debt. The marvelous revelations reflected in his laryngeal mirror put to rest all doubts as to his skill and completely demonstrated the art of laryngoscopy as a valued aid to medicine." And the same author, in reviewing the medical accomplishments of Dr. Solis Cohen, says that without doubt Dr. Solis Cohen occupies a high place in medical history. He was a prime mover, an original investigator, and an artist in his specialty. He was a pioneer in laryngology and was among the first American surgeons to specialize in diseases of the nose and throat and to study the use of the laryngoscope. He is one of the brightest stars in the galaxy of American laryngologists, and, therefore, his memory should be honored.

Pioneers have always had to fight against shortsightedness and bias, and they have been victorious only when they stuck to their ideas and the right form of energy was added to their thoughts and deeds.

The next step was the introduction of local anesthesia of the larynx. Koller, originally from Vienna, but who has been living in New York for many decades, was the first to introduce the use of cocaine into our technique, a step forward of paramount importance, because it eliminated the greatest difficulty in doing operative work in this highly sensitive region. It is very interesting indeed to read on this subject in old books on laryngology and ophthalmology. We note that Dr. Von Scherzer, returning to Vienna, from a world trip on the Austrian boat, *Novara,* brought the leaves of the plant Erythroxylon coca home with him. Nieman produced cocaine out of this plant, but Koller discovered its anesthetic quality and made his first announcement on this matter at the Congress of Ophthalmology in Heidelberg, Germany, September 15, 1884. This is the birthday of the use of local anesthesia in our work, which is of paramount importance in the development of our special work. Koller found that the sensitiveness of the mucous membrane is diminished by applications of cocaine and (the most important effect) that pains and reflexes can be abolished. This result was so manifest that Professor Schroetter, one of the great physicians and leaders of his time and chief of a large university clinic in Vienna, who at first was skeptical on this matter, finally made the statement that now all the difficulties encountered in operations on the laryngeal cavity have been overcome and that handicaps were no longer to be found in this work. That was the work of Charles Koller which shall not and cannot be forgotten.

Fig. 3.—Charles Koller, of New York, inventor of larynx anesthesia.

However, investigating physicians and scholars did not rest. It was their aim to go deeper and deeper. Professor Stoerk spent many years of experimentation in an effort to bring tubes into the esophagus. It is interesting and instructive to read in his papers and treatises (in the Vienna laryngology museum) how he tried again and again, painful as it was (not only for the patient), until he got results. He had a friend, a physician and inventor too, who was also a good technician, and these two men worked day and night to solve the problem. Stoerk used his friend as a guinea pig in constructing the right instrument for his gullet, but the light was not good enough and, therefore, the results were not very satisfactory. At first curved instruments were used, then straight rigid tubes. Another investigator (Kussmaul) was the first to introduce such

a tube all along the esophagus into the stomach. His "guinea pig" was of great value and an immense help: it was a patient who was a "sword swallower", whose mucous membrane was not allergic to any instrument and so (as it happens sometimes) the patient helped the doctor! But even here the light was not too good, and so the delight was a little dimmed. One had to wait till Edison's genius appeared upon the scene—and then there was no more darkness.

We must not forget the Frenchman, Desormeaux, who also had good results with his endoscope; and Einhorn, New York, who introduced a cold electric lamp on a stick into the depth of the tube. Also Killian, who was the first to introduce the tube into the deeper respiratory tract, and who is internationally known as the inventor of the bronchoscope. Chevalier Jackson modified the light position and constructed many valuable instruments, and his books are standard in this field. Thus the whole matter was settled and could be used in the best way. We must also mention the valuable work of Thomas French, of Brooklyn, who made good photographic studies of the larynx which he demonstrated sixty years ago before the American Medical Association at a meeting held in New York.

FIG. 4.—Gustave Killian, of Freiburg, inventor of the bronchoscope.

After French came the socalled bronchography which showed (after the introduction of a certain substance into the bronchial tree) the real configuration of the deeper parts of the respiratory tract. This science has reached a high point of perfection and no great difficulty is now found in the technique. But one thing must not be forgotten: Although this art is not difficult to learn, since we have excellent instruments and good light, the mucous membrane of these organs is very fine and vulnerable, and, therefore, the instruments must be introduced very gently. This mucous membrane cannot stand rough handling or a certain form of pressure, and must be treated as softly and gently as possible. Frequently, also, the patient causes difficulties, the socalled malice of the object, which can best be met by the routine of the technique and the experience of the physician. The scope of this work is now wide. Besides the mere extraction of foreign bodies from the various respiratory organs, it is possible to diagnose and treat many pulmonary diseases and lesions, such as abscess of the lungs, growths, asthmatic disease, and so on. As Jackson quotes Keen, the whole department of thoracic surgery has been revolutionized by the bronchoscope.

It is well known that this work can be only as satisfactory as existing conditions permit and every laryngologist who has ever delved into the larynx to remove a life-endangering foreign body, or to make a difficult diagnosis which could not have been made without it, has a feeling of satisfaction and confidence which is the highest goal of his work.

1016 FIFTH AVENUE

WILLIAM TURNER, THE ANATOMIST

JOHN N. E. BROWN
Toronto, Canada

William Turner was one of Scotland's greatest men. Although he was a graduate in medicine, he did not practice a great deal. Instead, he will be remembered as an anatomist and as a physical anthropologist. During his lifetime he occupied three prominent positions, the work of which he did most efficiently; he was professor of anatomy in Edinburgh for many years and then became its principal; he was also a member of its General Medical Council. It will be admitted that other brilliant men left Scotland and made their name in England, particularly Tweed. Lister and his intimate friend, Turner, were two Englishmen who made more than good in Scotland and became famous.

Turner's father died when he was young and when but a lad he engaged to work for a pharmaceutical chemist. During spare hours he studied chemistry with Christopher Johnson, in Lancaster, England, his home town. In this subject he took an ardent interest. Here he formed a great affection for Sir James Paget, one of his teachers, who remained a lifetime friend. One of his fellow students was Sir George Rolleston who afterwards became Linacre professor of anatomy and physiology in the University of Oxford. He won a scholarship at Barts, and a gold medal in pharmaceutical chemistry.

Turner had the intention of becoming a chemist and worked for a scholarship in chemistry; but was beaten in the contest by a farmer's son who was able to answer a question on agricultural chemistry in a better manner than did Turner.

Not long after this, Goodsir, professor of anatomy, fell ill, and Professor Strothers of the extramural school was called in to take his work. When Goodsir returned to work, he discovered that there were no suitable demonstrators in chemistry and no suitable candidates for the work. He wrote to Sharpey of the University College of London, and to Paget at Barts' to see if they could recommend anyone for the position. They both recommended Turner, who thereupon went to Edinburgh to see Goodsir about the position. Goodsir asked him one question only: to describe the sartorious muscle. Turner won the appointment. He commenced work in 1854 and here held the position for fifty years. When Goodsir died he was awarded the professorship which he held until 1869, when he became principal of the University. This position he held with the greatest acceptance until his death, which occurred in 1916.

During the mid-Victorian period anatomy was in a state of revolution, following the enunciation of the cell theory which had been established by Virchow and elaborated upon by Goodsir to whom Virchow dedicated his book on *Cellular Pathology*. Histology was taking its place in medical study, particularly the study of the structure of the nervous system. *Pari passu*, the

study of embryology, was coming into especial prominence. In 1859, Darwin's *Origin of the Species* greatly stimulated the study of anthropology. About this time the discovery of prehistoric man was reported. Turner took the keenest interest in all such matters and his acquisitions from a study of these subjects greatly influenced his teaching of anatomy. The result was that his students gained a comprehensive view of anatomy and its allied subjects, which greatly enlarged their vision. Prior to his arrival in Edinburgh, it is surprising to relate, he had had but little experience in anatomy and had not passed his final M.D.; but he worked hard, carrying on teaching and research.

It is worthy of mention that, on arriving in Edinburgh, he met Lister who had come there a year before. They collaborated on one subject, the structure of nerve fiber, and then jointly issued a paper in 1855-56.

Between 1867 and 1903—thirty-five years—10,500 students were enrolled in the anatomical department of Edinburgh University. In 1880, the number of students working in the dissecting room reached 633. The large classes put a strain on the teachers. It was difficult to secure subjects. In the year 1889-1890, a total of 2003 medical students matriculated in the University, women not included. This crowding led, in 1892, to a raising of the entrance standard, making physics compulsory, and an extension of the course from four to five years. The result was that Turner's class dropped to 189, the smallest number he ever had. He feared the effect of the new statutes would squeeze the anatomy course and throw men into physiology without a proper knowledge of the subject.

When Professor Turner was visiting Crichton Brown during the time Brown was in charge of an asylum, his host took him to a ward in which some thirty idiot and imbecile children were incarcerated. Although these children were given every comfort and lived amid beautiful surroundings, the scene quite overcame Turner. He remarked: "It's a terrible sight to see these poor creatures. I can't stand it. I feel quite faint. Take me away and give me some brandy." Brown said Turner reminded him of a freshman student of the nervous type at his first visit to the operating room. He was surprised, seeing that Turner had lived in the dissecting room for years. No one had done more in practical anatomy that he; yet he was as emotional as a girl at the sight of human degradation.

1178 Mount Pleasant Road

NEW FACTS RELATIVE TO THE HISTORY OF THE AMERICAN RED CROSS

SOLOMON R. KAGAN
Roxbury, Mass.

> "It is one thing to build an educational castle in the air at your library table, and another to face its actual appearance under the existing circumstances."
> —William H. Welch

The problem of priority in science and public welfare plays a great rôle in history, the object of which is to present the facts correctly and to give credit for pioneer work to the proper person or persons. It is regrettable that the priority in many important historical events is doubtful, due to lack of records and eye witnesses; there are also a considerable number of errors relative to priority in numerous cases. Extensive research work discovered in some instances the right person or persons who deserve the credit for certain inventions; many forgotten modest great men were discovered and due credit for their pioneer work attributed to them. For illustration several instances are given herewith.

Dr. Fielding H. Garrison stated that Dr. Robert H. Elliot, of Madras, introduced in August 1909 a new operation of sclerocorneal trephining for glaucoma (1). However, I have in my possession the original letter of Dr. Andrew Freeland Fergus, of Fernicrag, Rothesay, Scotland, dated April 19, 1930, addressed to Colonel Garrison, in which he wrote: "I operated for glaucoma by trephine in January, 1909 . . . I did not publish anything on the subject for the simple reason that in so grave a disease as glaucoma nobody has the right to publish till he has had sufficient clinical experience. I did several operations. To my astonishment in the month of April I got a letter asking me to go to the Oxford Congress of 1909 and do my operation. To that I consented . . . About the same time I communicated the details of the operation in the month of July at the Ophthalmic Section of the British Medical Association which that year met in Belfast. An account of the operation was given in the *British Medical Journal* shortly after the meeting . . . There was no difference whatever between my operation and that described by Elliot in *The Ophthalmoscope* in December 1909. Attempts, and I think far from regrettable attempts have been made to point out that there is a difference between Elliot's operation and my own. There was no difference whatever . . . Such an assertion would not have astonished me had it come from Wilhelmstrasse . . ."

In 1896 Dr. Henry Koplik, of New York, N. Y., first described a sign of early measles known as Koplik spots. However, a Russian, Dr. Filatoff, independently also described the same sign of measles in the same year in a Russian publication. From an historical point of view the sign should be designated as Koplik-Filatoff spots.

The Swiss surgeon, Ludwig T. Courvoisier, discovered that a gallbladder distended from obstruction of the common duct indicates tumor rather than a stone; this is known as Courvoisier's law. However, the same sign was previously reported by a Philadelphian, Dr. Jacob M. DaCosta. Elsewhere (2), I suggested that this discovery be designated as the DaCosta-Courvoisier law.

Dr. Harvey Cushing, on May 5, 1914, wrote to Dr. F. H. Garrison: "As for my own things I think you have rather overdone it, and I have scratched one of the paragraphs where credit was given which we hardly deserve. We were the first to show that experimental pituitary insufficiency led to constitutional symptoms comparable to those to which Frőhlich was among the first to call attention in clinical cases, and up to this time there had been little idea that they were due to

a lowered glandular function. This, of course, has done much to accelerate our subsequent studies. In this respect a few years later Aschner (Vienna) did not quite give us, I think, the credit that was our due. However, these questions of priority bother me very little, and, as I have said, I think you have thrown more bouquets in our direction that are really deserved."

There are known cases where priority was maliciously claimed. Thus, it is recorded in the literature that Joseph Swartz, a brilliant engineer of Austria, invented the engine for the Zeppelin. However, a German, Count Zeppelin, getting Swartz's invention, built the Zeppelin in his own name. Count Zeppelin did not possess the ability and zeal of an inventor, but possessed a great love for glory and publicity as being an inventor. An eminent American professor told me that when he visited Palestine several years ago he was offered the original manuscript of Swartz, which contains a full description of his invention of the Zeppelin engine, for seven hundred dollars. The sale was an urgent one, as it was feared that the Nazis might order the destruction of Swartz's original manuscript which might compromise the German hero, Count Zeppelin. In Dr. Abraham Schwadron's collection at the Jewish National and University Library at Jerusalem, there is a record of Siegfried Marcus, the inventor of the automobile. However, credit for such invention was given to other persons. Some changes may have been made in Marcus's invention, but Law Maxim said: "The principal part of everything is the beginning." Marcus was the first to invent his benzine-fuelled engine which fundamentally is the same as today's high speed motor car. He did not care to patent his important invention, but he is the originator of the automobile, although his name is seldom mentioned in its history. In Vienna there are eye witnesses who saw Marcus' self-propelling carriage in 1864 and his magical horseless carriage in 1875.

As is known, Miss Clara Barton (1821-1912), a native of Massachusetts, was the most remarkable American woman of her time. She possessed high ideals, inexhaustible energy, a wide vision, leadership and statemanship, and love for mankind. She was the originator of the American Red Cross in 1881; was responsible for the adherence of America to the Treaty of the International Red Cross in 1882; was the author of the American Amendment that the work of the Red Cross was to be exercised in war and peace; and she was the founder of the First Aid Department of the American National Red Cross. From 1881 to 1904 Miss Barton was not only the president but also an active worker of the American Red Cross—a mission which she fulfilled with great success and love.

A co-founder of the American Red Cross was Adolphus S. Solomons (1826-1910) of Washington, D. C. The scope of his work in this field is demonstrated by a number of documents, published reports, articles and books. A thorough study of the literature, documents and authoritative statements of eyewitnesses on the origin of the American Red Cross shows that Mr. Solomons was a pioneer in the foundation of the American Red Cross, and to a great extent he was responsible for its advancement and success.

The late Honorable Louis Marshall of New York, one of America's great jurists, who for many years was Mr. Solomons's closest friend writes: "The Red Cross Society held its first meeting at his (Solomons') home, being called into existence as the result of his initiative" (3). Dr. F. T. Haneman, medical biographer, of Brooklyn, New York, writes: "He (Solomons) was an incorporator, and for seventeen years an active member of the National Association of the Red Cross, and was one of its two vice-presidents" (4). The late Cyrus Adler, Ph.D., former president of Dropsie College for Hebrew and Cognate Learning, of Philadelphia, writes: "In anticipation of the ratification of this treaty, meetings of citizens of Washington were held in the late 'seventies, mostly at the hospital home of Mr. Solomons, and it was at one of these meetings that the proposal was agreed upon to incorporate in the District of Columbia a society under the name of "The American Association of the Red Cross" (5). David de Sola Pool, Ph.D., a noted rabbi, of New York, writes: "In April 1881 the organization of the Associated Charities was projected at a meeting held in his (Solomons') house, and in May 1881 at another meeting there it was decided to organize the American Association of the Red Cross, of which he became an officer" (6).

George Cohen writes: "The American Red Cross which has since its inception been the means for a vast amount of beneficent activity owes its inception to a large extent, to Adolphus S. Solomons. In conjunction with Clara Barton he laid its foundation stones. The very first meeting called to consider the formation of the society was held in his house. When the International Red Cross Congress was convened in Geneva, Solomons, together with Miss Barton, represented the United States. As a tribute to his efforts, the delegates elected him vice-president of their sessions" (7). B. C. Williams, the biographer of Miss Barton, writes: On June 9, 1881, at a meeting of organizing the American Red Cross the following were elected: Clara Barton, president; Judge Lawrence, first vice-president; General Mussey, consulting counsel; Mr. Solomons, treasurer; Mr. Kennan, secretary; Dr. A. Y. P. Garnett, vice-president for the District of Columbia (8).

There are references to Mr. Solomons's association with the Red Cross in Clara Barton's book on the history of Red Cross. The following are some excerpts on this subject: It was decided that the name of the Association shall be the American Association of the Red Cross; the term of existence shall be for twenty years and the number of this association, to be called the Executive Board for the first year of its existence, shall be eleven. In witness thereof we have hereunto set our hands and seals at the City of Washington this first day of July, A.D. 1881. Clara Barton, William Lawrence, Jos. K. Barnes, A. S. Solomons, Alex Y. P. Garnett.

United States of America
District of Columbia, 55

I, R. D. Mussey, a United States Commissioner in and for the District of Columbia, hereby certify: That Clara Barton, William Lawrence, Jos. K. Barnes, A. S. Solomons and Alex Y. P. Garnett, subscribers to the annexed and foregoing articles of incorporation, being personally well known to me, to be the persons who signed and sealed the same, personally appeared before me in the District aforesaid, and acknowledged the said articles of incorporation to be their free act and deed for the purpose therein set forth.

Given under my hand and seal at the City of Washington, D. C., this first day of October, A.D. 1881.

R. D. Mussey
U. S. Commissioner, D. C.

On March 23, 1882, a committee of eight men, including A. S. Solomons, signed the following "Appeal to the American People."

> "The President having signed the Treaty of the Geneva Conference and the Senate having, on the 16th instant, ratified the President's actions, the American Association of the Red Cross, organized under provisions of said treaty, purposes to send its agents at once among the sufferers by the recent floods, with a view to the ameliorating of their condition so far as can be done by human aid and the means at hand will permit" (9).

Robina Rae, librarian, American Red Cross, National Headquarters, Washington, D. C., in a personal communication writes: "Mr. Solomons is listed as a charter member of the American Red Cross. In the Certificate of Incorporation of 1893 he is listed as an Incorporator. His name is not included as an incorporator in the act to incorporate the American Red Cross in 1900. He is also listed as a vice-president . . . Mr. Solomons was a delegate to the International Red Cross Conference in Geneva, 1884. He was elected vice-president of the Conference." Colonel Fielding H. Garrison, Baltimore, in a personal communication writes that A. S. Solomons was a pioneer in the establishment of the Red Cross in this country.

Mr. Solomons aided substantially the American Red Cross movement in its early days in many ways by his great influence, finances, time and experience as a communal leader. He stimulated many influential men to patronize the American Red Cross; made frequent financial contributions to this organization, and at many meetings dealing with problems of the Red Cross he expressed vigorously his opinion and made suggestions for the progress of this humanitarian organization.

There are many records in the American and International Red Cross as well as in the Washington press illustrating manifold work accomplished by Mr. Solomons both in the organizational period of 1881 and in the reorganizational period of the American Red Cross in 1903. Several of them are given herewith. Clara Barton writes: "A cyclone occurring within a few months in Louisiana and Southern Alabama . . . decided us to send eight hundred dollars of the reserve to the secretary of the Red Cross Society of New Orleans, which sum was forwarded by our vice-president, Mr. A. S. Solomons. Miss Barton included Mr. Solomons' portrait in her book, *The Red Cross,* in the group of American National Red Cross members.

Mr. David R. Barlee, of Washington, D. C., tells that it was not by chance that the first meeting for the organization of the Associated Charities of the District of Columbia was held at the home of Mr. Solomons on K Street in April 1881. "Mr. Solomons was the moving or motivating spirit of the enterprise . . . He was constantly giving support to various organizations formed for the relief of mankind . . . When Clara Barton launched the first Red Cross Society, Mr. Solomons was at her right hand, and his name was signed to the application for the first charter and he was one of the original vice-presidents and for twenty years served in that capacity. President Arthur, unsolicited, named him with Miss Barton as the first American delegates to the World Red Cross Meeting in Europe" (10).

Solomons' pioneer work in American Red Cross was recognized and appreciated by his contemporaries. His efforts in behalf of the newly-organized society did not end in the District of Columbia. Following the ratification of the Red Cross treaty by the United States on March 16, 1882, President Arthur appointed him, in 1884, along with Clara Barton and Judge Sheldon, to represent this country at the Geneva Congress. The following is a copy of the original letter preserved in the archives of the American Red Cross, National Headquarters, Washington, D. C.

Department of State
Washington, July 14, 1884

A. S. Solomons, Esq.
Vice-President of the
American Association of the Red Cross:
Sir:

By direction of the President you are hereby designated as a representative of the United States to the Conference of the Red Cross Association to be held at Geneva on the first of September next, authorizing you, hereby, to do and perform all such matters and things as to the said place doth appertain.

I am, sir,
Your obedient servant
Fred'k. T. Frelinshysen

At the International Convention in Geneva, Solomons was elected vice-president. He thus became the first American vice-president of the International Conference of the Red Cross.

The following quotations are from the Report of the International Red Cross Conference of 1884, which present the remarks made by Mr. A. S. Solomons, Vice President of the Society of the Red Cross, delegate of the Government and of the Central Committee.

> Page 217: Mr. Solomons (U.S.): I am very happy to join in the thanks that have been extended to Mr. President for his excellent services. In the name of the United States, I thank the International Committee for the honor it has shown us in inviting us to be present at this International Conference.
>
> Page 229: Mr. Solomons (U.S.): You have perhaps observed, gentlemen, that we Americans have kept very quiet during your discussions. We are your pupils in the work of the Red Cross. We came to sit at your feet, in order to learn that which we yet did not know. You have been told the reasons of our long inaction. These reasons are above all due to the distance which separates us from you, and to our love of peace. We should like you to learn to know our activity in times of peace. We have not had war, it is true, but do not think that we have been inactive; that would be an error. It is probable that without Miss Barton we should not have any Red Cross Association in the United States. It is she who has taught our citizens to believe in it and to respect it. We are very happy to be able to see you and to shake your hands today. Until now, we could only read your letters, which is not the same thing. Count Serurier made you a proposal which deserves your deep consideration, but I will take the liberty of proposing to you to convene the next conference in Washington. In three years, exactly, there is to be held in that city an International Medical Conference. Many of you would have occasion to go to Washington for this reason. The International Committee would be able to study this idea and to inform us six months in advance. If this should be pleasing to you, and you should accept our proposal, the doors of Washington would be open to you even more readily than those that Dr. Port would open to us by means of his ingenious inventions. Your acceptance would give us the greatest pleasure.

On September 30, 1884, when Solomons returned from the Geneva Conference, *The Washington Post* sent a reporter to interview him on account of the work accomplished at the International Red Cross Conference. Among other questions the reporter asked Mr. Solomons:

> "How did the Powers receive their American cousins?"
> "It was an ovation everywhere. In Geneva we were given an official dinner, at which two hundred distin-

guished guests were present. Miss Barton was the only lady present in the room, and she received showers of encomiums from the various speakers."

"When will you make your report to the President?"

"As soon as Miss Barton and Dr. Sheldon return to America and we can have a conference on the subject." (11).

When the Spanish-American War broke out, the American National Red Cross Relief Committee was founded in New York City on May 3, 1898. Mr. Solomons was very active in the foundation and work of this new organization. He participated in the discussions on the question of establishing a National Relief Commission in New York City (12). Mr. Solomons was one of the five original members of the New York Executive Board, an incorporator and member of the organization, and a member of the Supply Committee of the American National Red Cross Relief Committee of New York (13).

At the meeting of the American National Red Cross Relief Committee of New York, Mr. Felix Adler offered a resolution to ask the public school children to contribute a penny each to the relief fund on the Friday before Decoration Day. This was the first attempt to train the children of the United States for a national relief purpose. Adler's resolution was accepted, and a circular was sent to the State Superintendents of Public Instruction. This circular was signed by a committee of thirty-six prominent men, including Mr. Solomons.

In the beginning of the twentieth century a conflict broke out in the American Red Cross. Under the accepted by-laws in 1903, Miss Barton was elected president of Red Cross for life, and empowered to appoint an executive committee of four members. The opposition demanded that Miss Barton administer under the direction of a Board of Control (14). The conflict resulted in the appointment of an investigating committee. The minority who opposed Miss Barton's administration secured President Theodore Roosevelt's aid, who in 1904 requested the committee not to use his name and the Cabinet's name on the Board of Consultation. On June 16, 1904, Miss Barton resigned.

Mr. Solomons helped to settle the problem with tact and prudence, and contributed to the reorganization of the American Red Cross under a new Federal charter, thereby placing the finances and affairs of this great organization on a sound basis. Throughout this critical period in American Red Cross, Mr. Solomons was engaged in correspondence with Mr. Howard Townsend of New York and many other influential men who were interested in the advancement of this organization. On January 27, 1903 Solomons sent the following letter to M. Gustave Moynier, president of the International Red Cross in Geneva:

> ... With this statement of history as a preface, it remains only to state that it would be an ignoble end of the glorious Red Cross in the United States, should the present changed conditions be permitted to prevail, and therefore without casting reflections upon any one it is respectfully asked of your International Society to see to it that a *new* American Association of the Red Cross be created by your committee in place of the existing one, making as a condition precedent that Miss Clara Barton be its honorary president during her natural life, together with the President of the United States, *ex-officio* during his term of office, and vesting all power for the government of the Association in a Board of Directors, composed of one representative from each State in the United States, appointed by its Governor, with power to fill vacancies, who shall elect from their own number an active president, a vice-president, a secretary and treasurer, and that the body so formed shall be incorporated by the Congress of the United States or under the General Incorporation Act of the District of Columbia.
>
> Without the slightest ill feeling towards the present president of the organization, but wholly in the spirit of what is assuredly in its best interests, it is proper to state that a great, living organization like that of the Red Cross should not be controlled by a few persons, not always wisely selected and not accountable to anyone, but by a representative body of men, in the manner referred to in this note, which cannot be too forcibly urged upon your serious attention and immediate consideration.
>
> As I was for twenty years vice-president of the American Association of the Red Cross, and a representative of the United States, appointed by President Arthur to the Convention of the Red Cross held in Geneva, I think in 1883, I respectively ask your action ...

On February 7, 1903, Miss Mabel T. Boardman, a member of the American Red Cross, wrote to Mr. Solomons:

> Dr. Anita McGee kindly sent me to look over the copy of your letter of January 27th to M. Moynier. It is most encouraging to those who have started this effort for a reform in the present conditions of the American Red Cross to realize that they can count on the support of one who for so long was intimately connected with the Red Cross in this country and who was for twenty years a vice-president ... I hope to have the pleasure and the opportunity of talking over the matter with you when you are in Washington if you will kindly arrange a time that will suit your convenience.

Significant is Mr. Solomons' letter, dated March 25, 1903, addressed to M. Moynier of Geneva:

> I enclose for your information, and without comment, a long statement on recent Red Cross matters, published in the "Washington Evening Star" of the 23d instant, and refer you particularly to the letter of the Hon. John W. Foster, late Secretary of State as named in mine of January 27.
>
> Movement indorsed. New York residents approve efforts to reorganize Red Cross.
>
> Below is a copy of a statement, signed by prominent residents of New York indorsing the plan for a reorganization of the Red Cross ...
>
> Mr. Simon Wolf, when shown the above this afternoon, said:
>
> "There are a number of members of the Red Cross in Washington cooperating with persons interested in New York and other cities in the effort to reform the business methods of the Red Cross. At no time has there been any desire to asperse the personal character of Miss Clara Barton."

On June 5, 1903, Mr. Solomons wrote to the Hon. David Jayne Hill as follows:

> In a conversation held yesterday with our mutual friend, Judge Penfield, in relation to Red Cross matters in this country, I learned that when you left for Switzerland its affairs had not developed into the condition now presented, and the Judge advises after a full presentation of the case to him, that with his assent I call your attention to the facts, having in view of your good offices to see if you cannot unofficially straighten out the matter without forcing an issue by asking Congress, as intended by the Washington Committee, by implication, to cancel the existing Charter of the Red Cross as granted by Congress on June 6, 1900.
>
> The enclosed copy of my letter to M. Gustave Moynier, dated January 27, 1903, and his reply dated the 25th of February, together with a printed pamphlet, being a memorial of certain officers of the Red Cross (Document No. 340), presented to the fifty-seventh Congress. Also a pamphlet on the Red Cross by Anita Newcomb McGee, M.D.
>
> The only public action I have taken is to be found on pp. 25 and 30 of the pamphlet, and this at the instance of the Rt. Rev. Bishop Potter, who was our chairman of the New York Relief Committee of the Red Cross, which did most of the practical relief work during the Spanish War.

What I desire is that the International Committee of the Red Cross take the initiative in Geneva, and annul their authority first given for the creation of the present American National Red Cross, and create another body with similar functions, as suggested in my letter, provided it be in their power to do so—in which case it will minimize the scandal, and consequent danger of injury to the good name and fame of the Red Cross, to which it is justly entitled, and which will be the inevitable result if the petitioner's claim be granted, after a searching investigation is made.

My connection with the Red Cross for over twenty years as member and vice-president, is my justification to make this request.

Perhaps it may not be improper for me to add that just before Mr. Adde left for Europe I had an informal talk with him on the subject, and I understood him to say that he was at one with me in the remedy I propose...

Yours very sincerely,
A. S. Solomons

The presented documents and historical facts prove Mr. Solomons' active connection with the founding of the American Red Cross in the District of Columbia in 1881; with the founding of the American National Red Cross Relief Committee of New York in 1898; and with the reorganization of the American Red Cross under Federal charter in 1905. In all these three important phases of the American Red Cross, Mr. Solomons was among the pioneers an inspiration to his associates, and a beloved leader (15).

Mr. Solomons was one of the most remarkable American Jews of his time. He was a humanist and a creative philanthropist. To him can be traced the progress of the American Red Cross, the organization of the Mount Sinai and Montefiore Hospitals in New York City, the Columbia Hospital in Washington, D. C., the first training school for nurses and other important organizations and institutions, all of which were the children of his genius for such matters. His transparent sincerity, unassuming goodness, genial optimism and willingness to serve humanity made him a greatly beloved figure. His personal devoutness was harmonized with a beautiful tolerance. He was extremely modest, and many of his noble acts during his long life were not recorded.

Louis Marshall in his necrology writes:

"He (Solomons) was, withal, a man of the greatest modesty. Though possessed of the grandeur of soul which pertains to a saint, his was the simplicity of a child. He believed in the sacred duty or personal service, and he performed that duty as a religious act, with cheerful heart, serious mind and willing hand, thoroughly and not perfunctorily. Though possessed of the creative intellect of a leader, he did not hesitate to follow... To the appearance of a venerable patriarch there was conjoined an ever-youthful interest in the world about him and in his welfare of his fellowmen."

He died on March 18, 1910, of pneumonia, at the age of eighty-three.

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176 SEAVER STREET

THE BIOGRAPHY OF CANCER

EDWARD PODOLSKY
Brooklyn, N. Y.

Cancer is a disease with a venerable history. It has been mentioned in the earliest of medical writings, the ancient Egyptian papyri. In 400 B.C., Hippocrates recognized hard, rapidly growing swellings which he called *karkinos* or *karkinoma*. He was among the first to realize that radical measures were necessary to effect a cure, and he used the cautery in their treatment. Leonides, about 180 B.C., was perhaps the first surgeon to pay particular attention to cancer. He treated cancer of the breast by radical amputation.

Several centuries later Galen, who believed that the body contained four humors, thought that these hard swellings were due to a stagnation of the black bile, and gave them the name cancer because they resembled a crab. This humoral theory remained undisputed until the seventeenth century when Paracelsus, who had a great many original and weird ideas, stated that a concentration of mineral salts was the cause of cancer.

In the early eighteenth century with the discovery of the circulation of the blood and lymph another theory was evolved, namely, that cancer was due to the coagulation and degeneration of the lymph.

In 1775, Persival Pott made the first observation on occupational cancer—cancer of the scrotum occurring in chimney-sweeps. About the same time Peyhilhe, attempting to transmit human cancer to a dog by injecting an emulsion of the growth, succeeded only in producing a large abscess.

After the microscope had been perfected science was given a superior eye with which to view the mysterious growth. About 1838 it was found that the cancerous tumor consisted of cells. Müller and Virchow made a great many microscopic examinations of cancer and found that it was an abnormal growth of abnormal cells, and the modern period of cancer research was ushered in.

Transplanting Cancers

Arthur Hanau, in 1889, was successful in transplanting a cancer from a rat several hours after death to two other rats and subsequently made a successful transplantation from one of the latter to a third rat. During the following decade animal cancers were transplanted by other scientists. Notable among these was Leo Loeb, who transplanted a cancer of the thyroid through forty generations of white rats. His observations were confirmed by Jensen, who transplanted mouse cancer through nineteen generations.

These early transplantation experiments brought an interesting fact to light. Jensen was unable to transplant a second tumor into an animal after the disappearance of one tumor. Bashford was much intrigued by this phenomenon and he showed by means of experiments that animals once successfully inoculated with cancer were resistant to a second inoculation whether the original tumor continued to grow or disappeared. But spontaneous cancers could develop in these animals which were immune to transplant, and what might have proved a method of inoculating against cancer in human beings was shown not to work at all.

Just what did these transplantation experiments prove? Many basic facts about cancer were learned by this method, which may be briefly stated as follows:

1. Cancer cells grow by their own division and not by converting neighboring cells into cancer cells.
2. Cancer cells are specific species, that is, a mouse cancer cannot be transplanted into a rat.
3. Cancers in the same species vary with the site of their origin. Each particular section of the body produces a particular type of cancer.
4. The cancer cell retains its original character wherever it may be. Thus, if a cancer of the liver is transmitted to the brain, it will consist of liver cells not brain cells.

Can Cancer Be Inherited?

The first piece of cancer research was transplantation, the second was heredity. About 1911 Dr. Maude Slye started her extensive research on the hereditary transmission of cancers in mice. Since then she has studied over one hundred thousand animals and has found a definite inherited tendency to breast cancer. She breeds strains that are always susceptible to cancer when an exciting agent is present and other strains that never have cancer. After a careful recording of these studies over a period of many years, she concluded that the transmission of the susceptibility to cancer in mice behaved as a recessive characteristic, that is, they could be breeded out. The inherited characteristic is a tendency or "manner of growth", so named by Dr. Slye (in a specific organ which enables an exciting factor to cause cancer). Other investigators have confirmed the hereditary character of the susceptibility to cancer, but they will not agree that cancer can be breeded out.

Inner Workings of a Cancerous Tumor

Both transplanted and spontaneous animal cancers have been subjected to many studies in an attempt to find out why they grow more rapidly than normal tissues and produce a process destructive to the body. Otto Warburg received the Nobel Prize in 1924 for devising a delicate apparatus whereby the inner activity of living tissues could be measured. By suspending a thin strip of tissue in an alkaline solution containing sugar at body temperature, with or without oxygen, he was able to measure activity in cells. He has carried out such studies on a great many different types of cells, including cancer cells.

Of chief interest in connection with cancer is the study of the two chemical processes by which sugar is changed to energy in living cells. Higher animals usually utilize oxygen in splitting sugars to carbon dioxide and water, but some other forms, such as yeast cells and bacteria, split it to lactic acid by a process which does not require oxygen. This process is known as glycolysis. Warburg studied these two activities and learned that glycolysis occurs in some normal cells, such as those in the retina of the eye and rapidly regenerating tissue, as well as in cancers. This process of glycolysis occurs in cancers even in the presence of oxygen as a result of diminished and disturbed respiration. Warburg's results have been amply confirmed. His conclusion is that interference with respiration in growing cells is the cause of tumors. In other words, if the respiration of a growing cell is disturbed, the cell dies; if it does not die, a tumor cell will result.

Tissue culture, a recent technic of cell study, began with Harrison's observation, in 1907, that the nerve cells of a frog would grow in lymph. This has been developed by Carrel, Fischer, Lambert and Haines. These men have been able to culture cells, both normal and cancerous. The most important use of these cells growing in test tubes is their availability for studying the effects of radium and x rays on them. That repeated small doses of x rays are more effective than single large doses was demonstrated by this method of study.

What Causes Cancer?

Febiger, in 1913, accidentally discovered cancer of the stomach in wild rats when examining them postmortem. After laborious experiments under great difficulties, he learned that rats ate cockroaches which harbored the larvæ of a nematode parasite, and that this parasite caused the stomach cancer. This was the result in more than half of his experimental animals. The cancers spread, but neither the eggs nor the larvæ of the nematodes were found in the secondary growths. This was the first experimental production of cancer. The parasite is now believed to have acted as a chronic irritant rather than as the immediate cause.

The theory of chronic irritation as the cause of cancer had been proposed by Virchow, who did some of the earliest research on cancer. His theory was supported by the cancers noted in chimney sweeps and in shale oil workers in Scotland and England, which were thought to be due to irritation from the chemical agents in oil and soot to which the skin was exposed. Finally, in 1915, cancerous changes were induced in the skin of a rabbit's ear by long continued application of tar, by two Japanese research workers, Yamagiwa and Ichikawa. The discovery that mice were more suitable for this experimental method helped to extend its use. The next step was the isolation from

tar, of hydrocarbons which have a cancer-inducing effect. These cancer-producing substances have in common a basic chemical composition.

It requires three to six months to grow a cancer by applying tar to a rat's skin. This is known as the latent period. This latent period in rats is equivalent to seven to fifteen years in the human life span, which figures correspond with the actual observation of the time required for the appearance of occupational cancers in workers.

The ring system, which is the basic chemical constituent of the cancer-producing agents in tar, is contained also in a series of substances produced within the human body, such as the bile acids, ergosterol and cholesterol. It is through this relationship that the similarity of cancer-producing chemicals to hormones (secreted by the endocrine glands in the body) was discovered.

This relationship later led to many curious discoveries. From work covering a period of thirty years the conclusion was reached that in mammals the sexual cycle of the female depends on the action of two hormones, the follicular and the luteal. The follicular hormone was first considered in relation to cancer production because of the chemical relationship of this hormone to the cancer-producing substances in tar. More recently the luteal hormone was shown to have a similar chemical composition.

As further research was carried on along this line it was found that extracts from coal and mineral oil had properties similar to those of the sex hormones in bringing about the sexual cycle in animals. Then it was also pointed out that sex hormones could produce increased activity of the cells, and that under certain conditions these hormones might bring about or accelerate cancer formation.

The results of research along these lines boil down to the following: 1. There are substances which produce changes in the sexual cycle in mammals as well as cancer. 2. There are cancer producing elements which are not capable of bringing about changes in the sexual cycle. 3. Likewise, some sexual hormones are not capable of producing cancerous changes. 4. Even in cases which possess both properties there is no parallelism between the strengths of the two activities. It would seem that the chemical groups responsible for these various activities are not the same, although an indirect connection may exist.

Theories of the Cause of Cancer

When the exact cause of a disease is not known many theories are advanced to explain it. There are numerous theories as to the cause of cancer, and many books have been written on this phase of the cancer problem. I shall mention briefly several of these theories.

As already mentioned, early theories as to the cause of cancer were, Galen's theory of the concentration of black bile; Paracelsus's theory of excessive concentration of mineral salts, and Hunter's theory of stagnation of the lymph. Somewhat closely related to the last mentioned, is a theory which has been advanced in recent years by Handley. His theory is that cancer is the end stage of an evolutionary process which begins with an inflammation in the lymph channels. This goes on to a state of chronic inflammation, which, in turn, leads to overgrowth of cells and subsequent degeneration into cancer.

One of the more widely accepted theories of the cause of cancer is Cohnheim's theory of embryonal rests. In the development of the unborn human being (the embryo) cells or groups of cells become misplaced, losing their growth impulse and remaining latent. At some time these cells begin to grow and tumors, benign or cancerous, result. There are many tumors for which this theory seems to account, but there are also many which it fails to explain; for example, the production of cancer by tar and other chemicals. It has also been found that misplacement of cells in organs is not rare, and many of these do not become cancers.

Another theory of cancer causation, which arose soon after Cohnheim's, was Ribbert's tissue tension theory, which was a modification of the Cohnheim theory, but it never received much attention.

Recently, Blair Bell, who attracted a great deal of attention by claiming marvellous results with lead in the treatment of cancer, formulated his own theory. It was his belief that cancer is a throw back of normal cells to a wild, primitive state of uncontrolled growth and energy. He believes that under certain conditions, due to the action of mechanical, chemical and other causes, ordinary cells retrace their steps back to the undifferentiated state of early embryonic cells.

In 1900, Farmer put forth the reduced chromosome theory, which held that cancer was due to cells taking on the characteristics of reproductive cells. He was led into advocating this theory from the belief that tumor cells had only half the usual number of chromosomes. This was disproved by further study which showed that the reduced number of chromosomes was not the rule in cancer cells.

Boveri, in 1914, concluded that cancer was due to a transmutation of chromosomes. He observed that abnormal cell division, occurring in sea urchins' eggs, due to transmutation, were continued in subsequent generations of the cells undergoing mutation. The resulting cells had too many chromosomes, and he thought they would go on to produce cancer. This theory was also proved to be false, because cancer cells have a normal number of chromosomes.

Perhaps the most widely accepted is the chronic irritation theory. It was Virchow who formulated the theory that tumors, which are overgrowths of cells, are due to chronic irritation occurring in the tissue in which they arise. There is much evidence to support this theory. As has already been mentioned, chimney-sweep's cancer and cancer occurring in shale oil workers have been ascribed to the long-continued contact with irritant materials. Other occupational cancers which are explained in the same way are cancer of the bladder in aniline workers; cancer of the skin in workers in paraffin, pitch and oils; mule skinner's cancer of the skin of the scrotum and anus due to constant soiling of these parts with minute droplets of mineral oil; lung cancer in metal workers, and skin cancers occurring in persons who work with radium and x rays.

Other types of cancer which support the chronic irritation theory are those which are an outgrowth of certain habits and customs, such as the betel nut cancer of the cheek in natives of Ceylon, and the

Kangri cancer of the skin of the lower abdomen which occurs in natives of Kashmir whose custom it is to carry a "kangri pot" next to the body for warmth.

Many chronic infectious agents are believed to play a similar rôle in initiating cancer formation. Chronic eczema of the nipple may sometimes result in cancer of the breast. Chronic skin ulcers may result in cancer of the skin, and piles may result in cancer of the rectum.

When bacteriology became established as a science in the last quarter of the nineteenth century several observers asserted they had found specific bacteria in cancers. This was succeeded by a search for protozoa, bacteria, bacilli and other minute organisms, which were claimed as causes of cancer. Many of these organisms were employed with alleged success in the artificial production of cancer and a few were even used as healing agents.

The crown gall in plants is an outstanding example of overgrowth of tissue which resembles cancer and contains a microorganism, Bacillus tumifaciens, but it actually is not a true cancer. Among animal parasites which were thought to cause cancer, the first and most important was the nematode worm found in stomach cancer of the rat. In 1906, Borell found that cancer of the liver in rats was infected with another type of nematode, known as Cysticercus fasciolaris. Cancer of the bladder in human beings has sometimes been found to occur in association with bilharzia infestation. It is believed that these parasites are not the actual cause of cancer, but that cancer is produced by long-continued irritation occasioned by their presence. Further, none of the characteristics common to infectious diseases are found in malignant growths, nor can the production of cancer by chemical irritants possibly be reconciled with the theory that cancer is caused by a germ.

There is one field of investigation that has kept open the question of the infectious origin of cancer. This is the work with chicken cancer first done by Rous about 1910. He found that this spontaneous cancer of fowls could be transmitted to other fowls of the same species by injection of a cell-free filtrate of the tumor. This led him to believe that it contained a virus, which was the causative agent. However, other diseases, accepted as virus diseases, behave like the infectious diseases and the chicken cancer does not. For example, it does not spread from one fowl to another, and it is specific to one species. No other animal tumor could be transmitted by a cell-free filtrate. Therefore, the Rous sarcoma has been considered an isolated exception peculiar to fowls.

Conclusion

The story of cancer is a long and interesting one, and in this article only the high lights have been mentioned. More and more interesting and significant facts are daily coming to light from cancer clinics and laboratories throughout the world. Physicians, surgeons, biologists, chemists and physicists are all cooperating in an attempt to solve this greatest of all problems.

2117 Seventy-Second Street

RAMAZZINI'S NOTES ON THE DISEASES OF LEARNED MEN

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New York, N. Y.

The masters of the past had the opportunity of setting down their reflections on a multitude of interesting phenomena, and the compilers of the more recent period have had the joy of unearthing these master works. Thus, on the hunt for the origin of a paragraph dealing with the cause of silk thrower's skin disease, my search led to the publications of Bernardino Ramazzini, founder of industrial hygiene and author of a best seller, *Diseases of Tradesmen*. Among the chapters of this fascinating, often translated, and frequently published manual is one on the diseases of learned men. This chapter has had many commentators. The original English translation was made by a Dr. James, and another Dr. James presented the chapter to the profession a few decades ago. I have included it in my compilation of the material in Ramazzini's text of dermatological interest. Reading the chapter "Of Diseases of Learned Men" gives one an insight into the problems of the practitioners of the late seventeenth century.

Bernardino Ramazzini was born in 1633, and died in 1713. Except for the actual knowledge of modern industrial hazards, Ramazzini recognized the primary bases of modern industrial safeguards. We might truthfully say that Bernardino Ramazzini lived centuries before his time. He developed a social consciousness which was unknown in his time. Workmen were actually of some concern to this professor of medicine, and physician to merchants and princes. About 1700, he published his observations made during two decades on the health risks in industry. He divided into two groups the causes of ill health due to occupation, namely, the deleterious nature of the material which the workman must handle, and the strange, improper positions of the body which were required; this classification cannot be improved upon.

In discussing the first group of causes Ramazzini recalled the men who work in mines, gilders, those who rub mercury, work at pottery, or with brimstone. Painter's colic and other ill effects of working with lead were known to Ramazzini. He recognized, too, that wiping the brush with the lips added to the dangers of the occupation of painting.

In the second category of causes of illness among workmen, Ramazzini devotes attention to those who work standing up, those who sit, those who run, ride horseback, and those who indulge in sports and the activity of camp life. Ramazzini understood the mechanics of man at work and attempted to explain its action.

The abridged edition of Ramazzini's works, which I compiled some time ago, is still in print. The following notes are taken from it with permission of the publisher, Medical Lay Press, of New York, N. Y.

Ramizzini's Comments on Diseases of Learned Men

We conclude our history of the diseases of artificers or tradesmen with a short review of those of the learned world, hoping that the men of letters will not take it ill to find themselves ranked in the class of tradesmen, considering that as other tradesmen gain by their trades, so they, by the pursuit of letters, purchase to themselves, if not great estates like those of merchants, at least a livelihood and many comforts and conveniences. For I see few, in this age at least, who would give themselves the trouble of pursuing learning, if they were not pinched with narrow circumstances before they set about it; so true it is that necessity is at once the mother of mechanic arts and of wisdom.

Generally speaking, ingenious men if pinched with poverty and buoyed up with the hope of obtaining riches, apply themselves entirely to the study of letters; and by that means procure to themselves not only a splendid estate, but a great reputation among persons of quality, who are forced to knock at the gates of the learned to ask advice. But after all, though the pursuit of learning affords a plentiful harvest of riches and glory, it seldom fails to produce thistles and an ugly crop of evils.

For learned men, to use Ficinus's words, are as slothful and idle in their bodies as they are active and busy in their mind and brain, and so almost all of them, excepting the practitioners of physic, undergo the inconveniences of a sedentary life. . . All of the men of learning used to complain of a weakness in the stomach. . . And accordingly we find the thorough paced scholars are thin, lean, wan coloured, morose, and lovers of a solitary life. They likewise contract a weakness of the sight by degrees. . .

Above all the retainers of learning, the bad influence of study and fatigue falls heaviest upon the writers of books for the public, who seek to immortalize their names. By writers, I mean authors of merit; for there are a great many, who through an insatiable itch for appearing in public, patch up undigested medleys, and make abortive rather than mature productions; not unlike some poets who will compose an hundred verses, *stantes pede in uno,* as Horace expresses it. Our wise and grave authors, who take care of their reputation and credit for ages to come, wear themselves out with toiling night and day, and sometimes fall a sacrifice to death before their works appear. But they are not so much injured by study, who only covet to know what others knew before them. . .

Thus it is that men of learning by excessive application to study render their bodies sickly and unfit for bearing the motion of the soul and the spirits. . .

For my own part I have observed that all the famous lawyers and public ministers I have had occation to know . . . were afflicted with a thousand sorts of diseases and cursed the profession they were engaged in.

The physicians fare much better, I mean those of them who run about and visit their patients and mind chiefly the practice of physic, for they are not subject to such a train of diseases; and if they happen to be ill, they owe their illness, not to a static or sedentary life, but to their constant walking and running about.

I have often wondered how it came to pass, that, when epidemical diseases, such as malignant fevers, pleurisies, and other popular sicknesses were raging all about, the practitioners of physic escaped free as if a certain privilege were attached to their profession. And upon mature consideration, I am of the opinion that this good luck is owing to their caution, to their great exercise, and to the cheerfulness of their minds when they return with full pockets from visiting their patients. Truly, I never observed physicians to be so much out of order, as when nobody else is sick. And this I have seen verified in a particular manner these last five years, which have been very healthy, without the appearance of any epidemical distemper. However, physicians do not always escape with impunity. . .

Many diseases are entailed likewise upon the poets, philologers, divines, and in fine all writers and the other retainers to learning who are chiefly employed in the functions of the mind. Above all, it goes hardest with the poets, who, by reason of the fantastic ideas always present in their minds both night and day, are timerous, morose and very lean as their looks testify.

We read in history that those who have a superiority of genius, and are cried up as great masters of wit, ingenuity and learning, are suddenly carried off by a certain evil fate and malignity of fortune.

The mathematicians, whose minds must of necessity be abstracted from the senses, and cut off in a manner from all commerce with the body, in order to contemplate and demonstrate the abstract things which lie remote from matter, are almost all stupid, slothful, lethargic, and perfect strangers to human conversation, or the business of the world.

Upon the whole, considering how much the health of wise and learned men contributes to the interest and good of the republic, it is proper that means should be thought upon for preserving their health as much as possible, and retrieving it when lost.

The chief thing to be borne in mind is a due regularity in the use of the six non naturals. In the next place these learned men must take care to live in a pure wholesome air. . . They ought likewise to go into the country and breathe in a free air; nay, it will be of use to them to diversify their way of living, by being sometimes in the country, and sometimes in town, and so intermixing company with solitude. . .

A custom that has now prevailed so far is that all sorts of men, whether young or old, bald or well provided with hair, make use of periwigs like cases for the head. And indeed experience teaches us, that periwigs are healthy and a seasonable guard for the head, when it becomes bald through old age or other causes.

Neither is this sort of cover for the head a late or new invention, for in the writings of ancient authors we find mention of a petasus, galerum and galericulum, which were caps made of skins with hair sewed upon them, so as to imitate the natural hair. Such caps were used by both men and women to cover their baldness, or their grey hairs, or else by way of ornament when they went abroad.

I consider the use of periwigs very convenient and healthful for men of learning, as being proper to guard the head from the injuries of the air, especially in winter; and abating for those of religious orders, who by rule of their order are prohibited to wear periwigs. I find few of the learned class who have not good large periwigs upon their heads, when they walk along

the streets, with their locks nicely frizzled and curled... Add to this, that when a man of learning, though old and stooping to the ground, sees himself in a looking glass with his face clean and close shaved, his skin smooth and well washed, and his periwig hanging snug about his ears, he rejoices within himself, and cheers up under the hopes of long life.

In ancient times, the professors of learning, especially the philosophers, gloried in their long beards and bald pates, as being the badges of wisdom. But now the tables are turned, and almost all secular professors are so neat and spruce when they walk abroad, that you can see neither beard nor grey hairs. . .

But we are not only taught by experience, that such artificial periwigs are very convenient and healthful for learned men when they draw towards old age, for reason suggests the same thing. And since the providence of nature has guarded the heads of young persons with thick hair; since the very children come from their mother's wombs with hair upon their heads; since young people who are warmed with the vigour of youth are not annoyed with the weight of their hair, but find it easy and convenient; why should not old men whose native heat fails, provide for the safety of their bald skulls with an artificial cover of hair, rather than caps of leather or silk. . .? Therefore, the hair covers or periwigs are much preferable considering that we are allowed to keep them on in church, and in the presence of princes.

As for the diet of learned men. . .they must take care not to cram their bellies quite full. . . In the age in which we now live chocolate is mightily in vogue among the learned world, as being comforting to the stomach and spirits. . .

As for drink, wine is preferable to all other liquors. I mean pure wine drunk in small quantities.

. . . that studious persons, subject to arthritic pains, cholic, and hypochondriacal disorders, all of which take rise from a morbific acid, ought by no means to make use of acid, but to have recourse to such things as break and enervate acid.

In regulating their conduct in other things, they ought to avoid the inconveniences of a sedentary and a stagnant life, to exercise the body moderately every day . . . to make frequent use of soft frictions for preserving and promoting perspiration; and to bathe in sweet water, especially in summer. . . The most convenient time for bathing is the evening, after which it would be proper to eat and so go to bed. . .

The morning is usually recommended as the most convenient time for study. . . But after all, there are some men who prefer the night to the day, and account the secret recesses and silence at night more favourable for study.

When we apply ourselves to study, we ought not to sit in little close cells or closets as some do, especially in winter to avoid the cold, but in a large room, provided the body be well covered. . .

The professors of learning ought therefore to pursue the study of wisdom with moderation and conduct, and not to be so eager upon the improvement of their mind, as to neglect the body. They ought to keep an even balance, so that the soul and the body may, like landlord and guest, observe the due measures of hospitality and do mutual office and not trample one another under foot.

I shall conclude this chapter with a pleasant and clever passage of Plutarch in his book *De Praecepti Salubritas,* which he writ, as he declares himself, for the benefit of studious persons and politicians: "The ox said to his fellow servant, the camel, which refused to bear part of his burden: 'In a little time it will be your turn to carry all my burden instead of a part', Which accordingly came to pass upon the death of the ox." Now the same is the case with the soul, which refuses to unbend and allow the body the relaxation and ease it requires, and soon after, upon the invasion of a fever or vertigo, the books, disputations, and studies are all laid aside, and the soul is forced to labour under sickness along with the body.

Bernardino Ramazzini needs no commendation from us some three hundred years after his birth. He was one of the few, very few lucky mortals who was recognized in his own life time for the genius he possessed. It is true, though, that the intervening centuries have not dealt too well with this man. In the hurried existence since 1713, when he died at the age of eighty-one, he has not fared well in the history books, nor have the physicians given much space to his original contributions to the health of workmen through prevention of industrial disease. This contrasts oddly with the acclaim which greeted the appearance of his work when translated into English under the title, *Diseases of Tradesmen.* It was not his only work but it has always overshadowed all his other studies, as those on the subjects of malaria, potable water, etc. Immediately after its appearance, *Diseases of Tradesmen* was reprinted in many languages and in many editions.

A TWO CENTURY OLD VOLUME ON PREMATURE INTERMENT

THE HONOURABLE WILLIAM RENWICK RIDDELL
Toronto, Canada

Among the treasures picked up in my rambles around the book-shelves of old London and Paris, is a much-prized octavo of 219 pages, bound in old-fashioned calf which contains solemn warnings against what is considered premature burial.

The fear of being buried alive is not extinct—at least, it was not when I was a student of medicine, several decades ago. I knew personally three patients who strenuously insisted that their bodies should be cremated, fearing burial while still living, though given up as dead.

My volume must have passed through the hands of an anti-Mason; it has inserted the title page of an octavo, printed in Mexico, in Spanish, attacking Masonry, published in 1850. It has passed through several hands; it has the book-plate of Sir William Forbes,

Bart., and several names are written on its blank forepage, one printed, "Rev. W. N. Neill, B.D., The Manse, Carfin, Motherwell".

The title page begins: "The Uncertainty of the Signs of Death and the Danger of Precipitate Interments and Dissections Demonstrated". Then follows an elaborate statement of the contents, filling nearly a page. The title-page ends with the following: "The Second Edition with a New Preface. Illustrated with Copper Plate. London: Printed by M. Cooper, at the Globe in Paternoster Row, MDCCLI."

The elaborate preface makes it appear that "a very large Impression of the Work had been vended in England in a very few Months, and another printed in Ireland, and sold in much less time". These facts "and the several Letters that have been sent by Gentlemen of Learning and Judgment" had induced the publication of a second edition. Since this edition was ready for publication, an account of an occurrence similar to some of those mentioned in the volume had appeared in the daily press of January 15, 1790. It was stated that the Parson of Hay, the Rev. Mr. Richard, died, as it was supposed, suddenly in December, 1750. His body was kept for about two days and then buried. Before that, however, his friends, finding that "his Body and Limbs did not stiffen, they sent for a Doctor. The Doctor bled him and could not easily check the bleeding, so he told the friends that the Parson was not dead but in a deep trance. He ordered them not to bury him; but they did so the next day. A person passing by the grave, heard a noise in one of the graves, and informed the Clerk, who, on opening the grave, found the body of the interred with "a great Bleeding at the Nose, and the Body all over in a sweat". It was then concluded that the body still had life on the interment but life had clearly passed away, and it was not exhumed. The design of this book was to prevent all such unhappy incidents.

The book contains an account of many such terrible mistakes—many of them very interesting. I shall mention only a few.

Other Instances of Premature Interment

The celebrated Johannes Duns Scotus, bit his hands after being buried, and the Roman Emperor, Zeno, tried to obtain release from the grave by loud groans distinctly heard by more than one person. Father Le Clerk, principal of the college of Louis the Great, a man whose veracity is beyond question, tells of the sister of his father's first wife being buried as dead. A domestic opened the coffin to get a valuable ring left on her finger, when the supposed corpse shrieked with the pain, and rising, lived ten years. Philip Peu, a prominent surgeon of Paris, tells of his being called upon to perform a Cæsarean operation on a woman who he was sure was dead. The woman shrieked when the knife was applied, so he says, and there can be no doubt of his veracity.

Several instances are given of buried persons being found after many days with their fingers bitten off.

I will conclude with the well authenticated story of the celebrated Asclepiades coming home from a visit to his county seat, stopping a funeral procession, and after a careful examination of the supposed corpse, proving him alive.

OSGOODE HALL

Syme and Liston

James Syme and Robert Liston were cousins, and both were original and remarkable operators and rivals. They taught anatomy together up to 1822, but quarreled, and when Liston went to London, Syme succeeded to his immense Edinburgh practice. After the death of Liston, Syme went to London but soon returned to Edinburgh.

Liston was a very muscular man and before anesthetics came in was, by reason of strength combined with knowledge and skill, the most sought after surgeon in Britain. Stories of his single-handed operations read almost like fairy tales. As was essential in those days, speed played a great part and few if any surgeons were more rapid and at the same time more effective operators than Liston. He was original too, and no city of the size of Edinburgh ever had two comtemporaries to vie with Liston and Syme.

Syme was born in 1799 and died in 1870. Dr. John E. Brown, of Toronto, a former president of the Toronto Medical History Club, wrote a paper on Syme and his renowned son-in-law, Lister, and read it before the club. Anesthetics put Syme's brilliant surgical work in the shade, but in his heyday none excelled him. Brown points out that Godlee states in his biography of Liston that Syme was regarded by some authorities as the greatest surgeon in the world, a high estimate indeed when one recalls the leading surgeons of his day: Pirigroff, Lisfranc, Dupuytren, Liston and Sir William Fergusson. The author does not quote the dictum of James Marion Sims, who, after traveling through Europe and Britain observing the work of the most famous operators, is said to have remarked that of all whose operatins he witnessed those of Syme, in his opinion, were done the most skillfully and effectively. Brown gives an account of Syme's progress. He studied anatomy under a bygone famous extramural teacher, Barclay, a Presbyterian minister who eventually dropped theology for anatomy and became well known as an anatomist. Liston was his senior demonstrator. Syme devoted himself to surgery.

In 1822 Syme visited Paris with Sharpey, attended the clinics of Dupuytren to whom on one occasion he lent a pair of Liston's forceps. One of his early operations was an amputation at the hip joint performed on a nineteen-year old boy for necrosis of the femur. Liston controlled the bleeding by digital pressure. In 1828 he published an account of a case of excision of the lower jaw for sarcoma, of course, without anesthetics. Assisted by Liston he did an operation for abdominal aneurysm when Liston is said to have saved the situation by his prompt and successful use of the tourniquet.

In 1831 appeared his *Principles of Surgery,* which for many years had a wide vogue and he was the first to show that excision is preferable usually to amputation. In 1842 he did his first successful amputation at the ankle joint; in 1564 he successfully excised the tongue; in 1857 he treated carotid and iliac aneurysms by tying the artery above and below and incising the tumor, and in 1862 he ligated an iliac aneurysm by tying the common external and internal iliac arteries.

Brown's account of the great Edinburgh surgeon relates the sort of work which a surgeon had to do before the time of anesthetics. His paper is interesting and of distinguished literary merit.

Editorials

Imported Diseases

One would think that the medical profession had enough to worry about today, with the shortage of doctors for the civilian population and a goodly portion of our medical men in the armed forces, but physicians can usually find something to be apprehensive about. Frequently, if the warnings of the medical profession were given more consideration, the country would be a healthier place and our mortality rates would be lowered.

Colonel Thomas T. Mackie fears that there will be a world-wide spread of tropical diseases after the war. He rightly states that the situation is unparalleled in history and that the hazard of disease to which the population of the world will be exposed at the end of the war is tremendous. He thinks that the peak of the danger will come as the armies return home and as the large masses of people in oppressed and disease-ridden countries will migrate after the war. One of the chief dangers he fears will be the bringing in of tropical diseases to this country. Even in peace times we have malaria in such northern countries as Canada, and there are other diseases which we definitely identify as tropical, such as filariasis or elephantiasis, which has been found in some of our southern states.

As these diseases are easily carried from man to man by various insects such as mosquitoes and ticks, we must be on the lookout for the spread of these infections to various parts of our own country. Now that air transport has shortened the time between infested tropical countries and our own shores, it will be harder than ever to control the situation properly; however, we should be prepared and do everything we can through sanitation to avoid the widespread increase of these diseases.

Absenteeism

There has been much talk about absenteeism in this country, as this condition seriously hampers the war effort. Absenteeism, in the proper usage of the term, is a needless and volitional staying away from a job. Our own observation shows that a good many of the absences today cannot properly be called absenteeism but are due to other factors, the principal one of which we believe to be ill health.

There has been such a vast change in the industrial production in this country and so little time spent in preparation for the huge changeover that many reasons for poor health among workers present themselves. We might mention that in many places where large industry has become suddenly concentrated, there are crowded living conditions and improper sanitation. In many places it is necessary to work around the clock due to shortage of space and shortage of machinery. These continuous shifts necessitate changed hours and, as a rule, a change in dietary and sleeping habits. The improper diet may not be a shortage of food but an imbalanced diet. Many workers are engaged in occupations that are entirely new to them bringing into play muscles and faculties that have not been properly trained and to which the body is unaccustomed. In some localities there is a shortage of physicians and the medical examination of the workers is, therefore, hasty, superficial, and inadequate.

The most important single cause, we believe, of lowered vitality and susceptibility to ill health and accidents is the general state of tension which exists. This tension is created by a great many factors. One's loved ones may be in some unknown sector at the front or on the seas where they are seldom heard from. In many quarters there is a feeling that the present high wages, long hours and lack of unemployment are transitory and will vanish when the peace comes; and there are innumerable other factors that tend to breed uncertainty.

It is true that life itself is uncertain as well as many of the component parts; nevertheless, much could be done if the cause of these difficulties were attacked intelligently and constructively rather than attempting to censor the large masses of laborers who are just as anxious to win this war as anyone else in this country; and most of them, we are certain do not work for wages alone but with the sincere desire for victory through the combined efforts of all the inhabitants of this country.

Typhus

Typhus is the most dreaded disease to which armies are subject. Its toll during the past five hundred years among soldiers has been enormous. Jerome Cardan (1501-1576) it seems was the first to describe it, although credit for this is gererally given to Fracastorius who wrote the best and most accurate account by far. Francisco Bravo, 1570 or thereabouts, a Spanish physician who practised in Mexico, described "tabardillo" in his *Classic Descriptions of Disease,* said by Major to be one of the earliest contributions to medical science from the New World.

Major follows the view of Murchison in holding that Willis' description of the epidemic in the army of the Earl of Essex was typhus and not typhoid fever. Willis (1621-1675) himself termed one fever febris pestilens, which Murchison held was typhus, and Willis' febris putrida as typhoid fever. Gerhard (1805-1872), an American, however, demonstrated the difference between typhus and typhoid fevers. Lind (1716-1794) showed that it could be carried by bed-

ding. Lastly, Nicolle (1866-1936) cleared up the moot point regarding typhus, the means of transmission, by discovering that it might be transmitted by a louse. It is a disease of dirt, of crowded insanitary towns, prisons, barracks and camps, in short, in conditions under which lice flourish.

Epidemics are apt to occur in times of war and famine. It is a disease of cold and temperate climates and occurs in those months when confinement indoors and overcrowding are most likely. In the tropics it is uncommon; lice cannot live in high temperatures. In Russia and Eastern Europe the disease is more or less prevalent and, of course, in times of war, conditions are favorable to its spread. In Serbia during 1915-16, it is said that at least 150,000 died from the disease. It is highly contagious. Head lice and certain ticks are also believed to be possible vectors of the disease. Little has been heard of it in Europe and Britain for many years because better sanitary measures, public and, as far as possible, domestic, were established. Public buildings, schools and, to some extent, homes were rendered as clean as possible. Even during the first world war the disease did not invade the Western front.

Enough is now known of certain means to control typhus. As long as organization holds and medical and hygiene services continue to work, typhus can be kept at bay. Nicolle provided the essential information that the transmitter is the louse and, therefore, if John Wesley's axiom that "cleanliness is next to godliness" is adhered to strictly in homes, schools, libraries, public buildings and offices generally, in this country there is little to fear from the dread disease.

Bacteriophage Treatment of Bacillary Dysentery

In the twelfth edition of *Stedman's Medical Dictionary* bacteriophage is described thus: "A lytic agent, assumed to be an ultramicrobe parasitic to ordinary microorganisms and causing their dissolution; an active agent in d'Herelle's phenomenon." D'Herelle maintained that the lysis was due to an ultramicroscopic virus to which he gave the name "bacteriophage". This definition seems sufficiently clear nowadays.

In the *British Medical Journal,* June 13, 1941, Dr. Arthur Compton, director and pathologist-in-chief, laboratory service, Alexandria Municipality, Egypt, presents a statistical retrospect of the effect of treatment by bacteriophage in the laboratory in Alexandria. It is obvious that, while bacillary dysentery has been common always in Egypt, the war and the influx of troops into the Near and Middle East has brought the importance of therapeutic control of the disease into greater prominence.

Dr. Compton bases his review on a statistical investigation of the mortality rates from dysentery over the period 1928-40, and a comparison is made between the statistics for Alexandria and the rest of Egypt where bacteriophage has not been so readily available. It is suggested that the decline in mortality rates from dysentery at Alexandria, as compared with the rest of Egypt, is due to the freer use of bacteriophage in that city. In Alexandria, it has become an established rule to treat acute bacillary dysentery and its frequent precursor, acute enteritis, with an ampoule of two cc. of bacteriophage as soon as possible and thereafter an ampoule every four hours, while the patient goes to bed and is put on a starvation diet with Vichy or Evian water only, for twenty-four hours.

This decline in mortality cannot be due to the better treatment of amebic dysentery, as that is uniform and standardized throughout the country, nor is it due to geographical or climatic factors, as the typhoid case mortality rate for Alexandria and for Cairo has not changed appreciably. The conclusion reached is that the cause of Alexandria's favorable position is the use of bacteriophage therapy for bacillary dysentery. Dr. Compton adds that the statistical evidence, whether convincing or not to the statistically minded, is only part of the case. A much more convincing part is clinical observation, which shows the favorable effects of phage preparations administered early in dysenteric forms of a bacillary nature.

Dr. Compton does not speak without his book, as he has practised with success and observed the success of this treatment during many years. Some years ago he published in the *Lancet* an account of the early work conducted at the Alexandria laboratories on the phage therapy of bacillary dysentery, which established the success of the treatment to the end that a definite demand for phage became established.

Prevention of Disease

The first aim of medicine should be the prevention of disease, which is the promotion of healthy living, and the second should be the prevention of incapacity from disease. It will take a long time to wipe out disease, indeed, to do so is practically impossible, but much can be done with this end in view. In the *Lancet,* July 5, 1941, Dr. E. Ferguson reviews this phase of medical effort at some length. He argues that hospitals, in Britain at any rate, have not been developed as major instruments of constructive health policy. The great drawback to the usefulness of British hospitals, he says, is that those patients requiring hospital treatment must wait a long time for admission, which shows a lack of provision for diagnosis and early treatment since other more compelling conditions have often to be given priority of admission.

While the prevention of disease is the primary object of medicine, the prevention of incapacity from disease is most important. Again, work in this endeavor must be suited to the form and degree of disability. The square peg is frequently put into the round hole and, according to the writer in the *Lancet*, the conception of the hospital function is not wide enough. To bring about the best results, the patient must cooperate with the doctor. The patient does not cooperate because as a rule he does not know how, and in many instances the doctor does not try to help along these lines. The aim of the doctor and hospital is to secure and guide such cooperation, but they must themselves work together before they can assist the patient in this way. The scope of the hospital is too restricted. There is need for more constructive hospital treatment—treatment that will not stop at first aid, however valuable that may be; more constructive work and more cooperation is required.

News Items

Personal.—Dr. O. H. Robertson, professor of medicine, University of Chicago School of Medicine, delivered the seventh Harvey Lecture in the current series being given by the Harvey Society in affiliation with the New York Academy of Medicine, on Thursday evening, April 15th. His subject was "Sterilization of Air with Glycol Vapors".

Dr. Lowell J. Reed, professor of biostatistics and dean of the School of Hygiene and Public Health at Johns Hopkins University, Baltimore, has been appointed editor of *Human Biology*.

Dr. Herman de Jong, formerly of Amsterdam, Holland, has been appointed associate professor of neuropsychiatry at Duke University, Durham, North Carolina.

Dr. H. I. Biegeleisen has organized a rehabilitation clinic at the Stuyvesant Polyclinic, New York, for rejected applicants for military service.

Dr. Joseph B. Altruda has been appointed associate surgeon in charge of plastic surgery at the Mother Cabrini Memorial Hospital, New York.

Dr. Conrad Berens has been appointed a member of the National Committee of the American Medical Association on Conservation of Vision.

Dr. William E. Ladd, professor of child surgery, Harvard Medical School, delivered the first Bela Schick Lecture at Mount Sinai Hospital on Tuesday, April 13th. The subject of his lecture was "Time and Choice of Operation in Early Life," and was illustrated by slides and motion pictures.

Dr. Currier McEwen delivered a lecture on "Management of Rheumatic Fever" at the New York Academy of Medicine on Wednesday, April 28th. This was the seventh lecture in the refresher course in cardiovascular diseases being given under the joint auspices of the New York Academy of Medicine and the Heart Committee of the New York Tuberculosis and Health Association of the New York Heart Association.

Dr. Chester M. Jones, of the Massachusetts General Hospital, Boston, delivered the nineteenth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, on Friday evening, April 23d. His subject was the relationship between the nervous system and pain perception, with particular reference to the gastrointestinal tract.

Professor Philip Bard, of the department of physiology of the Johns Hopkins Medical School, Baltimore, delivered the annual Hughlings Jackson Memorial Lecture of the Montreal Neurological Institute, on Wednesday evening, April 28th, his subject being "Rerepresentation as a Principle of Central Nervous Organization."

Dr. Gaylord W. Anderson, on leave from his post as head of the division of preventive medicine and public health of the Medical School of the University of Minnesota, has been made head of the division of medical intelligence in the Office of the Surgeon General, Washington, D. C.

Dr. Karl T. Compton, president of the Massachusetts Institute of Technology, delivered the Pilgrim Trust Lecture at Burlington House, London, on May 6th.

Dr. Hugh S. Cumming, director of sanitation of the Pan American Union, has received an honorary degree from the University of Santo Domingo.

Dr. Bernard Glueck, chief of staff, Stony Lodge Foundation, delivered an address on "Crime and Punishment" on Thursday evening, April 22nd, at the New York Academy of Medicine. This was one of the current series of Lectures to the Laity being given at the New York Academy of Medicine.

Dr. Maurice Lenz, professor of clinical radiology, College of Physicians and Surgeons, Columbia University, delivered a lecture on the "Value of Roentgen Therapy in Inflammatory Conditions" on April 16th. This was one of the seventeenth series of Friday Afternoon Lectures being presented at the New York Academy of Medicine.

Dr. José Amador Guevara has been appointed head of the venereal disease control program in Costa Rica and is reorganizing that country's program for 1943. Dr. Amador received his training at the Rockefeller Foundation for Medical Research and is well known in the United States.

Dr. Floyd S. Markham, associate professor of bacteriology at the Ohio State University has been granted a leave of absence and has gone to North Africa to take charge of laboratories for the Typhus Commission of the Rockefeller Foundation.

Dr. Thomas Addis, of the School of Medicine of Stanford University, San Francisco, Calif., was awarded the Cullen Prize by the Royal College of Physicians in Edinburgh, in recognition of his work on Bright's disease.

Dr. Clifford T. Morgan, instructor in psychology at Harvard University, has been appointed assistant professor of psychology at the Johns Hopkins University School of Medicine. This appointment will become effective on July 1, 1943.

Dr. Chester North Frazier of Baltimore, Md., has been appointed professor of dermatology and syphilology at the Medical School of the University of Texas at Galveston. He was formerly professor of dermatology and syphilology at Peiping Union Medical College, China.

Descartes and Modern Psychiatry.—A paper on "Descartes and Modern Psychiatric Thought" was presented by Dr. Iago Galdston and Dr. A. A. Brill at a combined meeting held on Wednesday evening, May 12th, of the Sections of Neurology and Psychiatry and Historical and Cultural Medicine of the New York Academy of Medicine. The discussion was opened by Dr. Nolan D. C. Lewis and Dr. Tracy J. Putnam.

Goldsmith Exhibit at the Academy.—An exhibition of over one hundred editions of the *Vicar of Wakefield* by Oliver Goldsmith was opened recently in the library of the New York Academy of Medicine, and will continue until May 15th. This valuable collection was recently presented to the Academy by Mrs. Lesta Ford Clay, in memory of her father, Dr. Linsly R. Williams, a former director.

Presentation of Clinical Research.—Realizing that the wartime suspension of the meetings of national medical societies has deprived many research workers of the opportunity to present the results of their work, the Committee on Medical Education of the New York Academy of Medicine will hold a meeting at the Academy on Thursday, May 27th, for the purpose of providing an opportunity for the presentation of clinical research.

Medicine and the Changing World.—A committee to study medicine and the changing order has been organized by the New York Academy of Medicine. The objectives of this Committee are defined as follows: To be informed on the nature, quality and direction of the economic and social changes that are taking place now and that are clearly forecast for the immediate future; to define in particular how these changes are likely to affect medicine in its various aspects; to determine how the best elements in the science of medicine and its services to the public may be preserved and embodied in whatever changed social order may ultimately develop.

Women Physicians to Receive Commissions in the Army and Navy.—The recently enacted Sparkman bill provides that during the present war and for six months thereafter there shall be included in the Medical Departments of the Army and Navy such licensed female physicians and surgeons as the Secretary of War and the Secretary of the Navy may consider necessary. Those appointed will be commissioned in the Army of the United States or the Naval Reserve and will receive the same pay and allowances and be entitled to the same rights, privileges and benefits as members of the Officers' Reserve Corps of the Army and the Naval Reserve of the Navy with the same grade and length of service.

Achievements of the American Social Hygiene Association.—In the annual report for 1942 of the American Social Hygiene Association, Dr. Walter Clarke, executive director of the Association, presented a summary of what had been achieved by the Association in its fight to combat venereal diseases. He said that "while the fight was going better in the present war than it did in the first World War, it was not going well enough", and called for greater effort on the part of the civilians in aiding in the work. The report showed that definite progress had been made during 1942, with the result that during the year the Army and Navy reported the lowest venereal disease rate in wartime history.

Association for the Advancement of Psychotherapy.—A meeting of this Association was held in New York on April 30th. The paper of the evening was read by Dr. Harry Benjamin on "Morals vs. Morale—The Sex Problem in the Armed Forces". Among those who participated in the discussion were Dr. A. L. Wolbarst; Mr. T. Swann Harding; Joseph F. Fishman, Deputy Commissioner of Correction in New York, and Dr. Morris H. Adler, a lieutenant in the Medical Corps.

Injuries to the Hand.—At the April meeting of the Clinical Society of the Reconstruction Hospital, New York, the evening was devoted to a discussion of injuries to the hand. Illustrative cases were presented by Dr. George A. Glass; Dr. Walter D. Ludlum, Jr.; Dr. Henry H. Ritter; Dr. John J. Moorhead, and Dr. David Goldblatt.

New York Cardiological Society.—The annual meeting of the New York Cardiological Society, Inc., was held at the New York Academy of Medicine on Wednesday evening, April 21st, under the presidency of Dr. Walter Bensel. The scientific program was devoted to a consideration of the subject of arteriosclerosis. Papers were presented by Dr. Albert Mueller-Deham, Dr. Angelo M. Sala, Dr. B. S. Oppenheimer, Dr. Louis I. Dublin, and Dr. Felix Bernstein. Dr. Louis Hirschhorn presented the report of the Committee on Scientific Progress which dealt with digitalis and quinidine. An executive session followed, with the election of officers.

Nurses' Aides for Army Hospitals.—Volunteer Nurses' Aides, trained under the joint program of the Office of Civilian Defense and the American Red Cross may now be used in Army hospitals. The Surgeon General of the Army has requested this service, and the sponsoring agencies have recommended that Nurses' Aides be assigned to Army general or station hospitals on request of the Commanding Officer of the hospital. The Aides must receive their training in civilian hospitals as heretofore, however, and service in Army hospitals must not interfere with supplying Aides to civilian hospitals and health agencies both now and in the event of enemy action. This proposed extension of the services of Nurses' Aides emphasizes the need for increased effort in recruitment in localities which have not yet participated in the program.

New Jersey Gastroenterological Society.—The March meeting of the Society was held in Glen Ridge, N. J., under the presidency of Dr. Harrison R. Wesson, of Montclair, now on active duty with the U. S. Navy. Dr. Hyman I. Goldstein, Camden, Dr. Alexander Strelinger, Elizabeth, and Dr. Louis L. Perkel, Jersey City, were the speakers at this meeting. The following participated in the discussion: Dr. Sigurd W. Johnsen, Passaic; Dr. S. B. Kaplan, Newark; Dr. Harrison R. Wesson, Montclair; Dr. Eugene Merliss, Newark, and Dr. Julius Gerendasy, Elizabeth. Dr. Sydney Rosenthal, Newark, secretary of the Society, is now on active duty with the U. S. Army, and Dr. Alexander Strelinger was appointed acting secretary-treasurer. Dr. Jacob L. Mathesheimer, Jersey City, vice-president, will be the acting president of the Society for the duration of the war. Thirty percent of the membership of the New Jersey Gastroenterological Society are now in the armed services of the country. The April meeting was held in Newark, N. J. on April 12th.

American Medical Association.—There will be no scientific assembly of the American Medical Association this year, but the annual session of the House of Delegates will open in Chicago on Monday June 7th, for the transaction of official business and the election of officers. The sixteen scientific sections of the Association, the Medical Corps of the Army, the Medical Corps of the Navy, and the Public Health Service are entitled to one delegate each. Dr. James E. Paullin, of Atlanta, Ga., the president-elect, will be installed as president. The regular meeting was cancelled on account of the difficulties of travel incident to war conditions.

Potential Surgical and Medical Materials Wasted.—The Office of War Information states that the waste of potential surgical and medical materials that might otherwise be used to alleviate suffering and restore American soldiers to health is one of the worst problems to arise when there is a black market in meats. Over and above the actual meat for food which is lost to legal trade, the Office of War Information said, strategic by-products are wasted such as materials from which are derived surgical sutures, adrenalin and insulin.

Grant to Yale University for Poliomyelitis Research.—Announcement is made that the National Foundation for Infantile Paralysis has made a five-year grant, totaling $150,000, to the Yale University School of Medicine, New Haven, Conn., for the establishment of the Yale Poliomyelitis Study Unit. The term of the grant will conclude June 30, 1948. The Yale Poliomyelitis Commission was established in 1931 and its aim has been to develop a virus laboratory particularly adapted for use by clinical members investigating the methods by which the disease is spread and transmitted. The Yale University School of Medicine will reorganize its investigation of poliomyelitis problems and henceforth studies will be conducted in the Poliomyelitis Study Unit in the section of preventive medicine, under the direction of Dr. John R. Paul, professor of preventive medicine, who will have full authority and responsibility for determining the nature of laboratory and field studies.

American Congress of Physical Therapy.—The spring session of the eastern section of the American Congress of Physical Therapy was held in New York, on Saturday, April 10th, in conjunction with the Connecticut Physical Therapy Society, the Section on Physical Therapy of the Medical Society of the County of Kings, the New Jersey Society of Physical Therapy Physicians, the New York Physical Therapy Society, and the Pennsylvania Academy of Physical Medicine. Among the subjects discussed at the afternoon session were the combined treatment of refractory gonorrhea; fever therapy in luetic keratitis; a method for preventing deformities of the foot in lower extremity injuries; foot problems in wartime, and rapid rehabilitation following certain shoulder fractures. In the evening greetings were received from the component societies, following which a scientific program was presented which consisted of papers on the following subjects: The physiology of peripheral circulation; fluorescein as a help in the diagnosis of peripheral vascular disorders; adaptation of a photoelectric method in measurement of circulation time, and physical therapy during and after the war.

A Discussion on the Treatment of Poliomyelitis.—At a combined meeting of the New England Society of Physical Medicine and the Boston Orthopaedic Club, held in Boston on Monday evening, April 26th, the program was devoted to a discussion of poliomyelitis. Papers were read by Dr. Herman Kabat, assistant surgeon, U. S. Public Health Service, Division of Physical Therapy, University of Minnesota Medical School, on "Recent Advances in the Concept and Therapy in Poliomyelitis", and by Dr. Robert L. Bennett, director of physical medicine, Georgia Warm Springs Foundation on "Recent Experiences in the Treatment of Poliomyelitis". The discussion was opened by Dr. William T. Green and Dr. Paul L. Norton. Dr. John W. O'Meara is president of the Boston Orthopaedic Club and Dr. Arthur L. Watkins is president of the New England Society of Physical Medicine.

Medical and Surgical Relief for America's Armed Forces.—According to a statement issued by the executive chairman of the Medical and Surgical Relief Committee of America, more than thirty thousand dollars worth of supplies were furnished by the Committee during the past year to Army Air Stations, the Coast Guard and Amphibious Forces of the U. S. Navy, and to Civil Air Patrol Stations in the United States, bringing the total value of Committee shipments up to $493,061.20. Among the supplies sent out during the past year were 248 complete physician's emergency medical field sets, and quantities of instruments, vitamins, sulfa drugs, burn ointments, concentrated foods, and surgical dressings. The contributors of drugs and pharmaceutical supplies included twenty-one of the leading pharmaceutical houses of the United States.

Convalescent Center for Walter Reed Hospital.—A convalescent center for Walter Reed General Hospital has been opened in the buildings which were formerly the National Park College, a school for girls at Forest Glen, Md. The convalescent unit provides an additional 1,150 beds, bringing the total capacity of Walter Reed Hospital to 3,325 beds. The fullest use will be made of the facilities of the school, which include a swimming pool, bowling alley, amusement hall, gymnasium and walks and drives through shady groves. The chapel contains a pipe organ and two libraries for patients. The clinical facilities for physical therapy, occupational therapy and dental work are extensive. The commanding officer at Walter Reed General Hospital Brigadier General Shelly U. Marietta, who is also in command of the Army Medical Center.

Australia Provides a Hospital for U. S. Forces.—The government of Australia, under its program of reciprocal lend-lease, has provided the United States with a new ten-story hospital "somewhere in Australia" to be used by American soldiers, sailors, and marines recuperating from illness and wounds suffered in the Pacific. The transfer does not involve payment of any sort. The building, construction of which was undertaken as a civic enterprise at a cost of $3,000,000, was taken over before completion and adapted for the American forces to accommodate several times its original capacity. It is complete with laboratories, operating rooms, nurses' quarters, and administrative offices and with equipment specially suited for the treatment of fevers and other illnesses which may be incurred in jungle fighting.

USE OF THE EYES AT NIGHT*

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These authors present a remarkably lucid explanation of how the use of the eyes at night calls upon ocular elements which are not activated in daylight. Their explanation has been facilitated by incorporating the similarity of radio terms and the visual. It is well known that the waves to which radios and retinæ are sensitive are indeed related forms of energy, both lying within the span of the electromagnetic spectrum; the radio waves are measured in metres, while those of light are in millimicrons—the billionth of a metre. When light rays fall on the retina an electric voltage is generated which is transmitted to the brain by the optic nerve, resulting in the sensation of sight. This response is effected by the rods and cones, the sensitive nerve endings, which became tuned to waves present in the spectral band between 380 and 760 millimicrons.

Daylight contains all the waves to which the retina is sensitive, manifesting itself as white light; colored light, on the contrary, is produced when not all the waves are displayed. While it is the cones which respond to color, it is the rods which enable us to detect light, even to one five thousandths of intensity, the degree wherein cone vision ceases to operate. The cones are not distributed evenly. Over the greater part of the retina both rods and cones are found, but the rods are chiefly at the periphery, and the cones in the centre, at the fovea.

This much for the *quality* of light. In night vision it is *quantity* that must be considered. The wave length of radio describes the *type* of the wave and it is necessary to consider the energy level of the wave by which *brightness,* "the volume", of the radio signal is determined. While day vision is *cone-vision,* and night vision is *rod-vision,* cones can function in dim light, becoming sensitive to weak signals—and be active in bright moonlight.

The rods functioning in bright light are highly sensitive in dim light comparable to extremely weak signals, and they are activated in the peripheral field band, becoming keenly sensitive to moving objects.

The transition from day vision to night vision does not take place immediately, as exemplified in one's sensation in going from the bright sunlit street into the dark theatre, where, as is experienced by all, vision gradually improves so that objects, invisible at first, in time become distinct, another radio action during which the waves "warm up". Likewise, in emerging from darkened spaces into a brilliantly lighted one, the eyes are dazzled for a few moments. These light-dark sensations are spoken of as *adaptations* and are brought about by chemical changes in the rods and cones. The time required for *light-adaptation* is much less than what is required for *dark-adaptation.* Normal persons differ in these powers, and the responses are not necessarily accompanied by good night vision, as there are other factors influencing it. Through training and by practice night vision can be improved, a fact of extreme importance in military service, and may spell success or failure in night duty. The practical application of such facts as those already stated to night-lookout duties is obvious.

If one remains in complete darkness for a half hour before going on duty, being careful that no bright lights are flashed across one's sight, adequate adaptation may be achieved. The eyes may be trained separately, for adaptation in one eye does not necessarily follow adaptation in the other. In service, however, to shield one and expose the other is hazardous, as the blindfolding might not be absolute, and further, the sight of the two eyes might be so unequal as to interfere with depth-perception, and, moreover, the two fields might respond unequally.

It is well known that wave lengths much beyond six hundred millimicrons are not visible; it is possible to simulate effects of adaptation by employing red lights, as the rods would be insensitive and, there would be no interference with their dark adaptation. Hence, red lights of an intensity appreciable by the cones can be used effectively, either by employing lamps emitting light waves longer than six hundred millimicrons, or by the wearing of goggles containing red glass so fitted as to shut out all light other than red. While the lamps enable the personnel to become dark adapted all together, the goggles can be of service while installation of the red lighting is being effected. Yet such goggles should be worn only by those preparing for night observation. Only the red of a specified wave length should be used, and the frames so adjusted as to be light-tight. It must not be forgotten that the field of vision is limited and all red chart markings and guides are no longer visible. A special type of goggles has been devised for use in the Navy which meets all the requirements.

With such a preliminary exposition of factors inherent in day and night vision, the authors advance several rules for the use of dark-adapted eyes. Their first injunction is to allow sufficient time to ensure complete adaptation and then maintain it. Air crews should avoid, therefore, lights of all kinds, from everywhere, even their instruments' lights. The personnel should accustom themselves to the feel of their instruments and of the machinery of their planes, so that, almost unconsciously, by touch alone they can manipulate them automatically, as by instinct, thereby developing the sense of touch, so much a part of their efficiency. As it is all but impossible to see the register scale, etc., on the instruments without some illumination there should be exposed but the faintest light and that only momentarily. A weak red light may suffice. When, in order to maintain dark adaptation, more light is needed, one eye may be closed and covered. Closing and covering one eye may also be useful when one is exposed to brilliant external lights, as searchlights, gunfire, etc.

Because of the retinal limitations, night look-out sight calls for special technique. In the light adapted eye, in dim illumination, as in starlight, vision is obtained by the rod-free fovea. The fovea, however, is

*Abstract of an article by the late Commander Eric Liljencrantz, M.C., U. S. Naval Reserve; Commander Clifford A. Swanson, M.C., U. S. Navy, and Lieutenant Commander Leon D. Carson, M.C., U. S. Navy. Published in the *United States Naval Proceedings,* 68:6:472:802 (June) 1942.

blind but visual rays can reach it by indirection; accordingly, the observer should direct his gaze somewhat above or to the outer side of the objective point. Such parafoveal vision can be attained by diligent practice, and further, the observer should learn to *scan,* that is, to move his eyes about in dim light in short jumps, and by searching the sky and horizon be ever on the lookout, from the "corners of the eyes".

Night vision being colorless can be attained only by the appreciation of *contrasts,* that is, objects appear lighter or darker than their backgrounds; so, too, haze, fog, dirty windshields or goggles seriously affect one's vision. Reflections from the instruments' lights can make night sight more difficult. Such points as these must be learned and must be considered in relation to one's plane in contrast with an enemy's, or when flying in order.

Accuracy in the estimation of the size of objects is prevented by night vision, and rod vision cannot make out fine details. Thus it is even difficult to see planes actually, and the relative position of two or more can be estimated only with difficulty. In action the detection of objects in motion should be anticipated before their actual definition has been accomplished. In the use of night binoculars there must be sufficient light admitted to give both magnification and illumination.

While the authors are aware of the effects of diet upon visual powers they do not advocate the routine addition of vitamins to the food of the personnel, except when there is an enforced shortage of *protective foods.* On long cruises, however, when adequate supplies cannot be maintained, it might become necessary to supply vitamins. Notwithstanding their laudation, the authors have been convinced that large, extra, doses of vitamins will not improve night vision above normal.

As protective foods, they list fresh vegetables, greens, fruit, milk, cheese, eggs, meat, liver, and fish; whole grains and nuts, too, as they contain vitamins. They reject sweets, coffee, tea and chocolate.

In the infancy of flying it was observed that at great altitudes a lowered supply of oxygen greatly affected the sight at night, therefore oxygen should be available sooner than in daytime flights. It was found that above six thousand or eight thousand feet the indicator scales became blurred, yet the increasing of the illumination of the panels only impaired the visual efficiency.

Efficiency in all details, both physical and mental, can be greatly impaired by *fatigue.* Although it is possible temporarily to lessen fatigue by the use of certain drugs, notably caffeine and benzedrine, the habitual employment of such drugs cannot be approved, indeed more harm than good can be expected therefrom in high altitudes. Heavy smoking and alcohol have been known to reduce efficiency.

By these provisions and directions it can be seen how necessary it is that the flier must pursue a course of training and must accept and maintain a strict regimen in all details of his occupation and personal life in order to insure his own safety as well as to become an efficient operator.

In conclusion, the authors summarize this general account into a condensed "Ten Commandments of Night Vision", each article of which they insist must be lived up to constantly, and not simply learned and spasmodically practiced.

317 South Fifteenth Street

PRURITUS ANI

(Continued from page 280)

a factor (10). Functional kidney disturbances with nitrogen retention are to be considered apparently in women more than in men (26). Pruritus may occur in insufficient hepatic function with or without icterus, apparently due to saturation of the blood with bile.

In diabetes there is a direct relation between pruritus and hyperglycemia (26). In a uric acid diathesis hyperacidification of the blood, according to Pulay, produces imbibition of the tissues with a sensory and sympathetic vascular irritation. In two hundred cases of pruritus or eczemas Schamberg and Brown found an increase of blood uric acid in forty-four percent.

Endocrine dysfunction may cause substances to enter the circulation and thus increase sensibility of sensory nerves, leading to itching in the presence of local irritation. Thus diabetes, exophthalmic goiter and the menopause must be considered.

The taking of excessive food, either directly or by the development of intestinal toxins, is said to be a potential factor (1). Deficient functional activity of digestive secretions may produce imperfect oxidation of important food elements. Any digestive upset may thus precipitate an attack. Rich diets and alcohol (4) are other general factors.

A local biochemical approach to the problem is offered by the observation that epidural injection of twenty percent magnesium sulphate cures most cases of pruritus ani (16). It is observed that such an injection adds magnesium ions to the biochemical structure of the cauda equina, thus restoring a disturbance of the calcium and magnesium ion equilibrium. In two cases so relieved pruritus returned after intravenous injection of calcium gluconate. Thus it is believed that pruritus ani is a syndrome linked with various causes capable of acting on sympathetic nerves in general, or on the sacral sympathetic by local causes. It is noted that epidural injection of novocaine, although interrupting the nervous paths much more effectively than magnesium sulphate, has no effect on the pruritus.

Psychogenic Forms

There remains for consideration the psychogenic form of pruritus ani. This type of pruritus ani may be a manifestation of hysteria, anal masturbation or other psychosis. The treatment of this group of cases is extremely difficult. They are usually complicated by other factors, particularly trauma (self-inflicted) and secondary bacterial infection. In such cases even after the local condition is completely cleared, and sometimes even after a neurotomy or tattoo the sensation of pruritus persists. Hopkins (22) reported six cases of skin diseases with pruritus in which the cause was largely, if not entirely psychogenic. Sack (20) states that pruritus may appear as a genuine hallucination, and is a very common symptom in endogenous and relative depression. This hallucination may be provoked easily, suggestively and autosuggestively. Senile pruritus is often an expression of a state of senile depression. Sexual neurosis must also be considered. These cases illustrate the necessity of combining the dermatological, the proctological and the psychiatric approach in the treatment of certain cases of pruritus ani.

The following etiological classifications are offered in review of the factors discussed:

General.—I. Cryptogenic. II. Secondary: 1, chemical; 2, mechanical; 3, bacterial; 4, psychogenic; 5, allergic; 6, physical; 7, metabolic.

Specific.— A. Cryptogenic pruritus ani, usually associated in vicious cycle with relief trauma.

B. Local rectal: 1, rectal constipation; 2, fissure; 3, fistula; 4, cryptitis and papillitis; 5, proctitis.

Factors: mechanical (traumatic); chemical; bacterial, with later possibility of allergic and psychogenic complicating factors.

C. Psychogenic: 1, hysteria; 2, anal masturbation; 3, other psychoses.

D. Traumatic: 1, scratching; 2, rubbing of clothing. Due to mechanical factors.

E. Allergic: 1, sensitization to bacterial toxins, fungi, or focal infections; 2, foods; 3, drugs, etc.; 4, eczemas.

F. Parasitic: 1, pinworms; 2, trichomonads; 3, monilia; 4, fungi; 5, itch mites.

G. Thermal: warmth and associated perspiration (moisture).

H. Chemical: 1, chemical in diapers (washing): infant pruritus; 2, alkaline or acid urine; 3, self or prescribed medications; 4, sweat; 5, urine containing calcium or oxalate crystals; 6, urine of senile dribbling.

I. General metabolic: 1, thyroid dysfunction; 2, diabetes; 3, kidney disease; 4, liver disease; 5, anemia; 6, vitamin deficiencies.

J. Reflex?

Summary

A new classification for pruritus ani is suggested on the basis of etiology. Those cases without evident etiology after exhaustive diagnostic study are classified as "cryptogenic pruritus ani". All other cases are considered to be "secondary pruritus ani". This classification should serve to stimulate complete diagnostic study before cataloging any individual case, and should provide guidance in choice of therapy.

The various etiological factors are discussed in some detail and a specific etiological classification is offered.

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43-53 KISSENA BOULEVARD

Psychological Aspects of Digestion

It is a truism to say that however wholesome the food which one eats may be, if the digestion is defective such food will do little good, and perhaps a great deal of harm. While a good digestion cannot be altogether brought about by care in eating, as, for instance, thorough mastication of the food, eating slowly and the avoidance of overeating, it can be helped greatly by following this advice. The psychological aspect is important. Savory meals tastefully served, with enticing odors and appealing to the esthetic senses aid the secretion of the digestive juices and add to the enjoyment of food which also helps digestion. Appetizing food acts as a spur to digestion and in the humblest homes food can be cooked properly and served in a way to excite appetite. Also before eating it is well to drop as much as is possible the watchfulness and mental strain so much in evidence in these distressing times, as mental irritation or worry has a marked inhibitory effect on salivary and gastric digestion and therefore relaxation of mind and body is helpful in counteracting the effects of mental irritation and worry. Dietetics has been called the Cinderella of the medical sciences but now it seems as if psychology had taken its place as the unfortunate sister. Whichever of these two important departments of medicine is best entitled to the name Cinderella matters little, as both will rise undoubtedly from their low estate.

The Normal Heart

Frederick A. Willius, of the Mayo Clinic, Rochester, Minn. (*Journal of Iowa State Medical Society,* July 1942) points out that the existence of a normal heart is not always apparent. It is frequently difficult, he says, to distinguish the normal heart from one that has been slightly impaired by disease and to distinguish clearly this slightly injured heart from the structurally normal one which has been disturbed by the provocative influence of neurosis.

In considering the means of arriving at a conviction that the heart is normal, it is apparent that these means consist of the skillful use of the methods which comprise the science, and the knowledge which comprises the art of diagnosis. By eliminative deduction, bits of evidence, both incriminative and exonerative, and by judiciously weighing, accepting or discarding, as the case may be, the ultimate conclusion is reached by logical and scientific means. The physician must reach the conclusion with certainty and conviction, so that he is able to render his verdict in absolute terms and remove the horrors of doubt from the patient's mind. No diagnosis can be more beneficent than the diagnosis that the heart is normal.

Book Reviews

Military Surgery

Burns, Shock, Wound Healing and Vascular Injuries. Prepared under the auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Illustrated. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 272. Price $2.50.

This is fifth in the series of manuals designed to furnish the medical men of our Army and Navy with compact information as to military surgery. Burns, shock, wound healing and vascular injuries are mutually related under many varying conditions both in peace and in war time. In his "preface", Dr. R. D. McClure says that successful treatment of burns depends largely upon "team work and requires the concerted efforts of general surgeon, physiologist, plastic surgeon and laboratory worker. "A surgeon with physiological training or aptitude makes the best leader of a burn team." The chapters deal with immediate general treatment, early local treatment, care of granulating surfaces including plastic management, skin grafting, and the burns resulting from chemical warfare.

Three chapters deal with shock. In 1942 Dr. Virgil Moon published an excellent work of some three hundred pages on this rather moot subject. To understand shock is a primary requisite to its satisfactory treatment. There has been, hitherto, a shroud of mystery hanging over the subject, but it is now being lifted. Here, in this volume, the paramount importance of fluid replacement in shock is satisfactorily stressed.

Two chapters are devoted to wound healing. This has always been a fascinating subject for the physiologist, and the philosopher who meditates upon the wonders of Nature as evidenced in the human body.

Injuries to arteries and veins are considered in the final five chapters, particularly arteries in "special locations",—the un-get-at-able, so to speak. Hemorrhage in shock is vital and may be lethal. Therefore, it must be managed in double-quick time if life is to be saved. This book tells how.

Health of Flyers

Flying Health. By M. Martyn Kafka. With forewords by Colonel E. C. Greene, (ret.), chief flight surgeon, American Airlines Corporation, and R. S. Damon, president, Republic Aviation Corporation. Harrisburg, Pa.: Military Service Publishing Company, 1942. Pp. 248. Price $2.00.

The health of our pilots is a matter of vital concern to the entire military command. It is highly specialized because the conditions under which our flyers work are often quite outside ordinary medical practice. On New Guinea and Guadalcanal, our boys live under conditions which are often more to be dreaded than attacks by "the Nips." Flies, for example, are major enemies, and are too often conquerors because of transmission of infection from the latrines directly to food. Dysentery is, therefore, a decimating disease. Malaria (there seems to be no other word) is of a vicious type not always controllable by quinine, and the mosquito has not yet been defeated in the tropics.

Altitude flying brings many extraordinary physiological problems to the flight surgeon. The respiratory tract must be free from malformations, such as deviated septum, sinusitis, nasal polypi, or asthma. Perfect vision is a *sine qua non*. "Glasses" are not allowed. Color blindness eliminates a candidate for the Air Force at once. There is also "the psychology of pilots" to be considered. Pilots, like poets, seem to be born rather than made. An otherwise good flyer may not have "flying sense", and in an emergency may do just the wrong thing. Nobody can teach "what to do" in all of its details.

Regarding air accidents, pilot error is still the major factor in spite of the "fifteen commandments" which every flyer must commit to memory. If a pilot is grounded because of any disability, he is not paid, and so he wishes to conceal his deficiencies. That situation is certainly amenable to "treatment." There should be no penalty for being "off-side" because of acute ailments to which all mankind is subject now and then.

This book is a pocket guide for everyone who flies or is interested in flying. That means about all of us in these days of airmindedness.

Skin Diseases

Diseases of the Skin. By Oliver S. Ormsby, M.D., Rush professor of dermatology, University of Illinois; and Hamilton Montgomery, M.D., M.S., associate professor of dermatology and syphilology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester. Sixth edition, thoroughly revised. With 654 figures containing 723 illustrations and six colored plates. Philadelphia: Lea and Febiger, 1943. Pp. 1360. Price 14.00.

This is a very learned and scholarly work and probably contains everything that has been written on the subject of which it treats, from the academic viewpoint. The skin is an important organ, even a vital one; for when a considerable portion of it is injured (burned) death may result. It is probably more sinned against than sinning, still it is often a witness to some constitutional disease such as syphilis where the parasitic cause, after entering the general circulation, produces signs on the body's surface. Such manifestations are extremely important in diagnosis; therefore, a discerning eye and an excellent memory, from having seen previous like conditions, are paramount. It is doubtful whether much can be learned from black and white illustrations such as abound in this text. Colored plates are very expensive, and when accurately made, help the general physician very much in his daily work. But dermatology *must* be learned in the clinic. Reading about it is necessarily of secondary value, although it is highly important. The general physician always feels at a loss when facing a skin eruption, is inclined to call it *eczema* and thus satisfy the laity. Such a diagnosis may be not only misleading but dangerous to the future life and well-being of a patient.

In daily practice, the physician is often called to treat accidental burns. His knowledge must be immediate and practical. On pages 177, 178 and 179 he will find all that this book has to offer on the subject. Immediately following is a paragraph on "dermatitis congelationis." This has to do with freezing, and occupies about a page of descriptive matter. Patients come for advice when they are suffering from sunburn. The word is not found in the index of this book. And what are we to tell them about this craze for sun-tanning and "sun-lamping"? This reviewer does not find these mentioned. However, a page is devoted to freckles —"ephelis or ephelides". Perhaps we are being spoiled by brief and practical war manuals.

Diseases of the Breast

Diseases of the Breast. Diagnosis, pathology, treatment. By Charles F. Geschickter, M.A., M.D., director of the Francis P. Garvan Cancer Research Laboratory. With a special section on treatment in collaboration with Murray M. Copeland, A.B., M.D., F.A.C.S., instructor in surgery, Johns Hopkins Medical School. With 593 illustrations. Philadelphia, London, and Montreal: J. B. Lippincott Company, 1943. Pp. 829. Price $11.00.

Much has been learned in recent years concerning the etiology, diagnosis and treatment of mammary diseases, and the Johns Hopkins School has been foremost in all this work. It is interesting to note that the breast is by no means a static organ, but subject to change in all the "seven ages of man." Full development does not occur until puberty is past. During the child-bearing span, there are tissue changes and alterations in form and function. With the menopause and on through senescence, involutional changes take place. Therefore, all developmental stages must be studied, in embryo, at birth, during childhood, at puberty, during the menstrual cycle, during lactation and at the menopause. The influence of hormones is considerable, and the function of the endocrines or their dysfunction (ovary, pituitary, placenta, etc.) have great bearing on diseases of the breast. Concerning this Dr. Geschickter has made some interesting and important laboratory investigations on animals. In the rat and rabbit he has produced cystic mastitis and practically all forms of tumors, benign and malignant. Part 7 of the book is devoted to a detailed description of these studies, and certain conclusions are drawn as to the "mechanism of tumor formation".

This book aims to "cover" and to set forth in graphic style all that is known concerning the mammary gland to date. It is an absorbing and highly important *arbeit* out of which other workers may be stimulated to carry on researches concerning that most important of all baffling and degenerative diseases, cancer. Here in a readily accessible organ (the breast) one can experiment fully, and investigate widely and deeply. The breast may yet offer the secret which underlies malignancy.

Clinical Neurology

A Textbook of Clinical Neurology. With an Introduction to the History of Neurology. By Israel S. Wechsler, M.D., clinical professor of neurology, Columbia University. Fifth edition, revised. With 162 illustrations. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 840. Price $7.50.

Of all the branches of clinical medicine neurology lends itself best to the interpretation of signs and symptoms in terms of disease structure and function. The current tendency is to weave into one texture anatomy, pathology and symptomatology. The author of this book, however, adheres to the older form of presentation of neurological disease as it appears at the bedside outlining the anatomical basis for subsequent clinical interpretation. It is in reality a digest of the current knowledge of neurology without stressing polemic material, detailing case reports or references to literature. Actually the book adheres to the nosology of Oppenheim. After a discussion of the preliminary neurological examination there follows a discussion of the diseases of the spinal cord, the peripheral nerves, and the brain, and finally of the neuroses. The book is practically limited to the common neurological problems encountered in everyday practice without any reference to the neurological manifestations of systemic disorders or psychiatric disturbances other than the neuroses. Many of the subjects in which tremendous chemical advances have been made are lacking, and such as are mentioned are still treated in the classical manner without reference to these newer concepts; for example, the various forms of tetany, all due to depression of the calcium ion concentration of the blood, are treated empirically, the chemical aspects being totally ignored. The book is, however, an excellent evaluation of the subject and of great value to the student.

Psychotherapy

Psychotherapy in Medical Practice. By Maurice Levine, M.D., attending psychiatrist, Cincinnati General Hospital, assistant professor of psychiatry, University of Cincinnati College of Medicine, etc. New York: The Macmillan Company, 1942. Pp. 320. Price $3.50.

This approach to psychotherapy is practical in terms of the realities of medical practice. The general practitioner has always used psychotherapeutic methods, hence the purpose of this book is to guide him in the type of psychotherapy he can use to greatest advantage. Emphasis is on psychiatric treatment involving the patient as a whole rather than on the diseased organ of the body. The author stresses functional association with the highest integration of the individual through his special perception, his relationships with other people and other objects in various disorders to which the patient is subject. After a consideration of the common misconception of psychotherapy, methods are presented which are most useful for everyday practice. Special topics of interest, for example, suicide risks, sex, marriage, and basic attitudes towards children, although in the realm of the psychiatrist, are also included because of their importance in the management of diseases involving these aspects of life.

Electrocardiography

The Electrocardiogram and X Ray Configuration of the Heart. By Arthur M. Master, B.S., M.D., F.A.C.P., cardiologist to the Mt. Sinai Hospital, New York. Second edition, enlarged and thoroughly revised. Illustrated with one hundred and eight figures, containing one hundred and sixty-three illustrations. Philadelphia: Lea and Febiger, 1942. Pp. 404. Price $7.50.

Excluding arrhythmias, electrocardiography may be divided into two parts, the changes associated with muscle damage, acute or chronic, and those related to the configuration of the cardiac chambers. Examples of the first group are rheumatic carditis, myocardial infarction and fibrosis, lobar pneumonia, typhoid fever and acute nephritis. The second group includes factors such as age, body position, habitus, obesity, pregnancy, hypertension, valvular disease, congenital heart disease, pulmonary disease and deformities of the chest which alter the contour of the heart. The significance of the second group has been largely neglected and this monograph has been written in the effort to correct this, since an appreciation of the dependence of the electrocardiogram on the size, shape and position of the heart is absolutely fundamental in the interpretation of the electrocardiogram. This revised edition has drawn considerably from current literature to demonstrate the fundamental thesis.

Critique

Pointer Readings Eddington discussed *The Nature of the Physical World* in his Gifford Lectures for 1927. Therein he held science to be a mere linkage of some pointer readings with other pointer readings. Whereas atoms had been regarded as tiny billiard balls, Eddington now surrendered their intrinsic nature and made them schedules of pointer readings. Since these ultimately referred back to our brains, he thought the stuff of the world might be mind-stuff after all. Plato was resurrected in a new form. Eddington said: "It is a consequence of the advent of the quantum theory that physics is no longer pledged to a scheme of deterministic law. Determinism has dropped out altogether in the latest formulations of theoretical physics and it is at least open to doubt whether it will ever be brought back . . . The future is a combination of causal influences of the past, together with unpredictable elements—unpredictable not merely because it is impractical to obtain the data of prediction, but because no data connected causally with our experience exist." The laws governing atoms, electrons, and quanta cannot be used to obtain predictions of what individuals will do next. Instead they indicate several future possibilities and state the odds on each.

Negro Musical Ability Some years ago (*Science,* January 18, 1929) Guy B. Johnson of the University of North Carolina investigated the musical ability of more than 3,500 persons in grade schools and colleges of North and South Carolina and Virginia. He tested such musical abilities as pitch, intensity, time, rhythm, and tonal memory, and only in the last did Negroes differ from whites; there they ranked lower. The only respect in which Negroes show anything like a racial advantage over whites in music is in vocal ability, and that is due to anatomical differences in the vocal organs and does not reflect superior musicality.

Creating Life Who now remembers the efforts to create life made by Dr. Stéphane Leduc of Nantes? He worked on osmotic growths. These growths absorbed nourishment from the liquor in which they existed. New material was absorbed by intussusception, by the addition of new molecules between the molecules of the existing material. Certain mineral "foods" would be taken, others rejected, and waste products were excreted. Dr. Leduc made osmotic growths that resembled a great variety of living things —algæ, mushrooms, grasses, seeds, leaves, flowers, corals, clam shells, and so on, in form, texture, color, and structure. Many of the osmotic growths swam around in their mother liquor or underwent rhythmic movements connected with their nutrition. Others crudely reproduced by budding. Wounds also were healed. These osmotic growths in fact presented all the classic characteristics of living matter. (Cf. A Ghost Walks by John Hodgon Bradley Jr., *New Republic,* January 23, 1929.)

In *Comptes Rendus* (1905 141 280ff) Leduc described the germination and growth of an artificial cell formed by putting a drop of sugar containing traces of potassium ferrocyanate into a solution of copper sulfate. This became covered with a ferrocyanate membrane, permeable to water but impermeable to sugar, and the "cell" both grew and threw out arms or rootlets which slowly grew in turn. Water penetrated the envelope which was impermeable to sugar, and the cell thus absorbed the substances necessary for its growth. At times small droplets detached themselves and thereafter grew of their own accord.

In a later issue of *Comptes Rendus* (1907 144 39ff) Leduc further described these artificial growths, with accompanying pictures of inorganic compounds in formations resembling simple organisms. He claimed that he got stable growths of relatively large dimensions, some of them motile and having distinct terminal organs to absorb "food." The organisms grew differently, depending upon the type of inorganic chemical offered as "food." Chlorides of sodium or potassium gave wormlike growths, potassium nitrate growths with spines, and ammonium chloride growths like cattail tops. If iodine was in the culture medium it was absorbed and colored the growth. Parts broken off were replaced as in lower organisms. Semipermeable membranes, of course, occur also in plant and animal growths of lower orders.

The Golden Age Lord Avebury in his Prehistoric Times, pg. 188 of Mason's *Creative Freedom,* lauded the Eskimos as a quiet, peaceable people who could not be made to understand what was meant by war and who had no warlike weapons. As a general rule it was impossible to put any dependence on their promises, not so much because they were intentionally deceitful as on account of the wavering and inconstant disposition they possessed in common with many other savages. However, a successful huntsman or fisherman was always ready to share his catch with his less fortunate neighbors, though he expected a return at a suitable opportunity. In other words the Eskimo was not a damned fool. He gave away nothing without expecting to receive as much again and was unable to imagine any other line of conduct, for that would mean a simple deficiency in ordinary gratitude. Eskimos felt no pleasure in the infliction of pain though they would take little trouble to ease suffering. They were great thieves outside their own kind, but strictly honest among themselves.

The Value of Orgies In ancient times periodic orgies were common. Some ancient Hebrew worship was pretty boisterous, while the cult of Dionysius was notorious for license and Livy said all sorts of crimes and excesses took place at this festival. The Saturnalia was a time of kicking over the traces, and the custom was followed by most savage tribes. The Fiji ushered the orgies in with a solemn feast, followed by indescribable revelry and license, all property rights being suspended, foul language and sex promiscuity being indulged in, and even the brother-sister silence tabu was violated! Imagine a man being able to speak to his own sister! Gosh was that license in the extreme? But then the Fiji settled down to the conventions, the brothers quit speaking to their sisters, and all lived righteously. The orgy purged the tribe of evil for a year. They were on good behavior the rest of the time.

THE CRITIC

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MAY 1943

Medicolegal Notes

Relation Between Myocarditis, Injury to Pelvis and Femur, Lung Abscess and Death

An injury received on November 17, 1931, consisted of multiple fractures of the pelvis and a posterior dislocation of the left femur. The employee did not work thereafter, lost weight and was eventually confined to his bed. After his death an autopsy report gave cause of death as: "Acute cardiac failure due to a chronic myocarditis and coronary sclerosis. Contributory causes being marked anthracosis of the lungs and an abscess of the upper right lung."

Two doctors for the claimant and three for the defendant gave conflicting testimony. An award for the claimant was reversed by a judgment of Court of Common Pleas. This was reversed by the Pennsylvania Superior Court, Williams vs. Susquehanna Collieries Co., 25 Att. 2d 751, and judgment directed on the award to claimant.

One expert for plaintiff, asked his opinion as to whether or not the accident was a marked contributory factor in the employee's death, said: "I think it was." This was held to amount to an assertion of his professional opinion which it was for the compensation authorities to reject or prefer to contrary expert opinions, and not for the court. The witness also testified that the lung abscess came from deceased's injury and that the chronic myocarditis and coronary sclerosis, primary causes of death were aggravated by this injury to such an extent that they caused his death.

The opinion of an impartial expert that it could be logically assumed that an injury of that extent to a man of deceased's age shortened his life although he could not say that it directly contributed to the death, would not have been sufficient to sustain the award, standing alone, but the referee was not required to disregard it as entirely contrary to the medical opinion.

Hospital Records as Evidence of X Ray Examinations

Hospital records are available and constitute uncontradicted documentary evidence, at least, of the fact and dates of insured's visit to a hospital prior to his application for a life insurance policy, in an action on the policy where the defense is misrepresentation in the application. The custodian was allowed to testify as to the contents of the records. They showed two x ray examinations at the hospital. Conceding that insured might not have known that he had a serious ailment, he was bound, it was held, to know and remember that he had, in fact, made repeated visits to the hospital for x ray examinations, etc. This information, concealed by the insured from the company, was held material to the risk. True answers to the questions would have enabled the company to make further investigations. Judgment for defendant was affirmed. Anastasio vs. Metropolitan Life, Pennsylvania Supreme Court, 27 A 2d 510.

Hospitalization "To Cure and Relieve" Construed

In a workmen's compensation proceeding, where the claimant was totally and permanently disabled by being paralyzed from the waist downward, the Kansas City Court of Appeals, Brollier vs. Van Alstine, 163 S. W. 2d 109, holds that the provision of the compensation act authorizing an award for medical and hospital treatment and services reasonably required for the first ninety days after an injury or disability to "cure and relieve" from the effects of the injury, is to be construed, if possible, so as to give effect to both the words "cure" and "relieve" but the court will not rewrite the provision by way of construction.

The insurer claimed that the words be used in the conjunctive sense, and, as the claimant could not be "cured," the commission had no power to order the insurer to furnish hospitalization and medical and surgical treatment to "relieve" him. This contention was rejected on the ground that the legislature must have intended that both words should be given effect, else it would not have used both.

Insurer contended that claimant could as well be cared for at home as at a hospital, but at much less expense. The court held that the evidence indicated that hospital treatment was what was required and that the commission so found. The court said: "In making this order the commission was within the provisions of the statute in ordering 'such additional similar treatment' as that which is authorized in the preceding portion of the statute and which claimant had theretofore been receiving." Judgment for the employee was affirmed.

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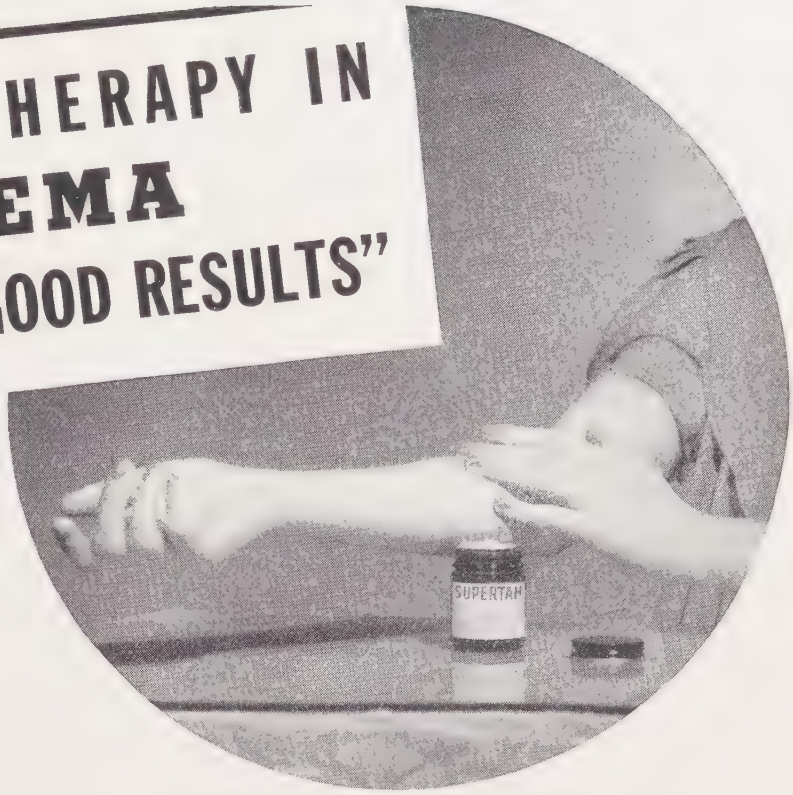

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*Swartz & Reilly, "*Diagnosis and Treatment of Skin Diseases*," p. 66.

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New Publications Received

(We publish full lists of books received, but acknowledge no obligation to review them all. Nevertheless, so far as space permits, we shall review those in which we think our readers are likely to be interested.)

THE INNER EAR. Including Otoneurology, Otosurgery, and Problems in Modern Warfare. By JOSEPH FISCHER, M.D., staff member, Beth Israel Hospital, Boston; formerly associate of Adam Politzer and senior otolaryngologist with Gustav Alexander, Policlinic of Vienna, and LOUIS E. WOLFSON, M.D., instructor in ear, nose, and throat, Tufts Medical School; senior surgeon in ear, nose and throat, Boston Dispensary. New York: Grune and Stratton, 1943. With 79 illustrations. Pp. 421. Price $5.75.

NEUROSURGERY AND THORACIC SURGERY. Prepared and edited by the Subcommittees on Neurosurgery and Thoracic Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Illustrated. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 310. Price $2.50.

GYNECOLOGY. With a Section on Female Urology. By LAWRENCE R. WHARTON, Ph.D., M.D., associate in gynecology, The Johns Hopkins Medical School; assistant attending gynecologist, The Johns Hopkins Hospital; consultant in gynecology, The Union Memorial Hospital, Hospital for the Women of Maryland, Sinai Hospital and Church Home and Infirmary. With 444 illustrations. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 1006. Price $10.00.

FORMULARY AND HANDBOOK OF THE JOHNS HOPKINS HOSPITAL. Baltimore, Md.: The John D. Lucas Company, 1942. Pp. 253. Price $2.00.

DISEASES OF THE SKIN. By OLIVER S. ORMSBY, M.D., Rush professor of dermatology, University of Illinois; attending dermatologist to the Presbyterian Hospital of Chicago; member of the American Dermatological Association and the American Academy of Dermatology and Syphilology; corresponding member of the Section of Dermatology of the Royal Society of Medicine, London; of the Société Française de Dermatologie et de Syphiligraphie, Paris, etc., and HAMILTON MONTGOMERY, M.D., M.S., associate professor of dermatology and syphilology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester; associate in section on dermatology and syphilology, The Mayo Clinic; member of American Dermatological Association, etc. Sixth edition, thoroughly revised. With 654 figures containing 723 illustrations and 6 colored plates. Philadelphia: Lea and Febiger, 1943. Pp. 1360. Price $14.00.

DISEASE OF THE NOSE, THROAT AND EAR. Medical and Surgical. By WILLIAM LINCOLN BALLENGER, M.D., F.A.C.S., late professor and head of the department of otology, rhinology and laryngology, School of Medicine, University of Illinois, Chicago, and HOWARD CHARLES BALLENGER, M.D., F.A.C.S., associate professor of otolaryngology, Northwestern University School of Medicine, Chicago; surgeon, department of otolaryngology, Evanston Hospital, Evanston, Ill. Eighth edition, thoroughly revised. Illustrated with 604 engravings and 27 plates. Philadelphia: Lea and Febiger, 1943. Pp. 975. Price $12.00.

STEDMAN'S PRACTICAL MEDICAL DICTIONARY. Of words used in medicine with their derivation and pronunciation, including dental, veterinary, chemical, botanical, electrical, life insurance and other special terms; anatomical tables of titles in general use, the terms sanctioned by the Basle Anatomical Convention; the new British anatomical nomenclature; pharmaceutical preparations official in the U. S. and British pharmacopeias or contained in the National Formulary; and comprehensive lists of synonyms. Fifteenth revised editon, with etymological and orthographical rules. By STANLEY THOMAS GARBER, B.S., M.D., University of Cincinnati, College of Medicine. A William Wood Book. Baltimore: The Williams and Wilkins Company, 1942. Pp. 1257. Prices: Thumb indexed $7.50; without thumb index $7.00.

A SHORT HISTORY OF CARDIOLOGY. By JAMES B. HERRICK, emeritus professor of medicine, Rush Medical College; consulting physician to Presbyterian Hospital, Chicago. Springfield, Ill., and Baltimore, Md.: Charles C. Thomas, 1942. Pp. 258. Price $3.50.

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TRUTH OF THE MATTER

Modern Workers In Mosaics

How One Thing Leads to Another in Science

T. SWANN HARDING
Falls Church, Va.

I was once privileged to meet in person a distinguished scientist with an international reputation from whose work you have derived benefit and yet whose name is almost certainly unknown to you. It was back in 1910. Those were the days when Dr. L. O. Howard, internationally distinguished entomologist, headed the United States Bureau of Entomology, and when the late Dr. C. L. Alsberg, later to head the Bureau of Chemistry and the Food Institute at Leland Stanford University, worked on plant and animal poisons in the Bureau of Plant Industry.

At the time I was working in the old Bureau of Chemistry of which Dr. Harvey W. Wiley was still chief. I was acting as a pair of hands for the notable sugar chemist, also an internationally famous expert, Dr. Claude Silbert Hudson, now in the Public Health Service. For I was a very nascent and untrained chemist those days, and was much puzzled myself by the existence and nature of these rare sugars that we were preparing from vegetable-ivory button waste, from corncobs, from cottonseed hulls, from sugar-beet pulp, from gum arabic, and from a variety of unlikely plants. One day Dr. Hudson, in quest of a rare plant, sent me to see the international authority.

It was then that I met for the only time Dr. Edwin F. Smith. I had no idea whatever of his distinguished career. He remains in my mind simply as a kindly old gentleman who sat in a cluttered basement office and who treated me as courteously as if I had been some visiting celebrity. It is to him that we very largely owe the fine asparagus, celery, lettuce, tomatoes, sweet potatoes and possibly many other fresh vegetables that we eat regularly. We are both indebted to him yet you doubtless never heard his name mentioned and I am a great deal worse because, though I met him personally, I was too ignorant at the time to know what a really distinguished and socially useful scientist he was.

By now you would probably like to know what Dr. Smith did. It had been demonstrated in 1878, by T. J. Burrill of the University of Illinois, that pear blight disease was caused by a bacterium. Somewhat later M. B. Waite of the Bureau of Plant Industry showed that insects could act as carriers of plant diseases by observing that honeybees carried the pear blight infection from flower to flower. All this work was ridiculed by European botanists, however.

Dr. Smith entered the Bureau of Plant Industry in 1886. He commenced to work on bacterial plant diseases in 1893, having laid aside earlier studies of fungus and virus diseases. By 1901 he had firmly established the science. Moreover, he was the man who put the discovery over by engaging in a famous polemic with Fischer of Germany and other European skeptics who denied that bacteria could cause plant disease. Smith proved the point and established a discovery that might otherwise have languished for years.

Notable among Smith's assistants was William Allen Orton, whom I met in later life—your typical scientist in appearance and a man who, though cursed with

(*Continued on page 314*)

Mothers Now Are Younger

According to the *Statistical Bulletin* of the Metropolitan Life Insurance Company, the burden of rearing the Nation's children is being borne by very young women, and at the same time, the proportion of young women within the reproductive ages is decreasing. In 1920 young women under twenty years of age contributed 8.6 percent of the total births for the year. This percentage increased gradually to 11.0 percent in 1935 and 1940. Women of ages twenty to twenty-four also contributed an increasing percentage of children during the two decades from 1920 to 1940, the figures mounting from 28.1 percent at the beginning of this period to 31.3 percent at the end. However, the next age group, twenty-five to twenty-nine years, presents a mixed picture. The relative contribution to total annual births borne by women of this age group at first fell from 27.9 percent in 1920 to 26.1 percent in 1930, but subsequently rose to 28.6 percent in 1940. The net result was that, for this age group, as for those younger, the relative contribution at the end of the twenty-year period was greater than at its beginning.

In the case of women of ages thirty to thirty-four, after some fluctuation, the percentage contribution to total annual births was *smaller* at the end of the two decades than at its beginning. In 1920 women of this age group bore 19.0 percent of the children for the year, while in 1940 the figure fell to 17.7 percent. A much more marked decrease is found among women of ages thirty-five or more who bore children. Whereas these women accounted for 16.4 percent, or practically one-sixth of the births in 1920, by 1940 the figure for this age group fell to 11.4 percent, or about one-ninth of the total.

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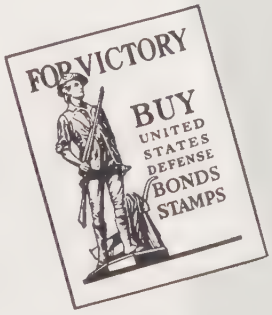

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a chronic and later fatal disease, served humanity regardless. At the time I knew Dr. Orton he had long been diabetic, but he had made this disease an opportunity. Dr. Elliot P. Joslin tells that he cultivated ninety-nine different vegetables good for diabetics in his garden and that his contributions to the understanding and treatment of the disease are comparable in importance to his scientific work in phytopathology.

When I knew him he was in the terminal stages of the disease, weakened by its ravages, saw poorly through thick lenses, and was almost totally deaf. Yet in the last months of his life he went to South America to assay tropical forests for the Brazilian Government, and produced a report of a forest policy so sound and comprehensive that it was the marvel of expert foresters who were amazed that a person not a technical expert in that line could prepare so splendid a document.

But Dr. Orton's specialty was phytopathology, the disease of plants. Prior to the work of Smith and Orton, plant diseases had been regarded as a result of weather conditions and, therefore, natural visitations of Providence. But the erratic behavior and increasing destructiveness of these diseases, and the epidemics which swept all plants from large areas, caused growers to demand that the Government study their cause. Whole areas devoted to melons and to cotton were devasted, for instance.

Scientists, but not laymen, were aware even then that some plant diseases were caused by fungi. But Dr. Smith discovered that bacteria were at fault in many cases previously supposed to be of fungicidal origin, but in which fungi could not definitely be implicated. Smith's rôle was really analgous here to that of Hertz and Helmholtz whose studies in pure science made possible the wireless work of Marconi. Though Smith finally won international reputation among technical workers he has remained practically unknown to laymen, yet every American consumer of sauerkraut owes him an indirect debt.

But when this Government worker first announced in 1899 that wilt disease in cotton, watermelon, and cowpea, was bactericidal in nature, neither European scientists nor the general public could accept an idea so revolutionary. It even seemed utterly absurd and it was a long time before the real benefits of this work could be realized, so conservative by nature is the animal Man. Dr. Orton's original publication, *Wilt Disease of Cotton and its Control,* published from the Division of Vegetable Physiology and Pathology in the Department of Agriculture in 1900 as its *Bulletin No. 27*, was a classic.

He was then a very young scientist called suddenly from his university work to assist Dr. Smith. He had never seen a cotton plant in his life, but he had brains. He was sent South to devise means to combat this disease that wiped out large areas of cotton, the wilt. He almost immediately observed that certain plants for some reason failed to contract the disease. It struck him that that resistance might be hereditary. Thus a great idea was born, the idea that plants could be bred resistant to certain bacterial plant diseases. He proceeded to carry out his idea with outstanding success. Meanwhile he also succeeded in transmitting certain fusarium (fungicidal) diseases of cotton by pure-culture inoculations, a task at which Dr. Smith himself had failed.

Through The Menstrual Years of Life-

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Having conquered cotton wilt Dr. Orton turned next to the discovery of a wilt-resistant cowpea. Then he produced a watermelon resistant to wilt by cross breeding the edible melon with the resistant citron, and in two years' time he had mapped the solution of all the problems which Dr. Smith had in 1898 defined as among the most seriously threatening in the field of plant pathology. His conclusions are still valid. The plant-disease control work not only of the Department of Agriculture but of the entire world proceeds on lines he laid down. It would be utterly impossible to hazard an estimate in monetary terms of the economic value of these basic scientific discoveries of Smith and Orton. The sum would be so stupendous as to be incredible.

There is scarcely a fruit, vegetable, or cereal crop today which would not at one time or another have suffered most seriously, or have been wiped out altogether, had not plants resistant to bacterial diseases been bred in accord with these principles. There is always necessity for the unceasing continuance of this work. New plant diseases repeatedly appear. Resistant plants must be bred. In recent years the sweet potato crop had been made a staple by proper breeding and attention to storage conditions in order to control bacterial diseases. New forms of cabbage, lettuce, asparagus, tomatoes, celery, and other vegetables have been bred which have completely taken the place of the old disease-susceptible varieties so long and so disastrously (in an economic sense) grown.

You probably do not realize that our lettuce crop is a minor farm product worth from twenty-five to thirty-five million dollars a year. In the South where some thousands of carloads are grown annually, brown blight appeared and threatened the crop with annihilation. A Department scientist, working on the basic Smith-Orton principles, quickly bred lettuce strains that proved resistant to the blight but they proved highly susceptible to mildew, a serious lettuce disease of the Southwest. He went to work again and evolved the doubly resistant varieties called Imperial C, Imperial D, and Imperial F. These varieties grew on seventy-five to eighty thousand acres in the Southwest in 1932 and returned five millions to their growers. They could also be grown in regions where the blight was a serious pest.

That is only one of the many debts we owe Smith and Orton. Another takes us into Louisiana cane fields devastated by sugarcane mosaic and to sugar beet fields rendered useless by curly top of beets. In 1926 many thousands of acres of cane went unharvested and the total cane sugar production was but one-fifth of normal. The industry faced annihilation. Meanwhile curly top disease of beets had invaded most of the best territory west of the Rockies and, in threatening the industry in extensive areas with extinction, involved the livelihood of thousands of farmers, and the idleness and abandonment of a capital investment of fifty million dollars in beet-sugar-making equipment.

But the problem was solved by E. W. Brandes of the Department scientific staff, using the basic principles of Smith and Orton. Both diseases were conquered by the breeding of resistant strains of cane and beets, saving about twenty-five million dollars to the cane industry of Louisiana alone, and ending an annual economic loss of five million dollars being suffered by the best industry. For sugar cane mosaic cost a loss of one million dollars before it was controlled; but in 1943

(*Continued on page* 316)

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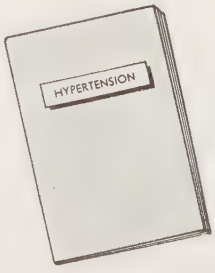

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This 40-page monograph on hypertension summarizes the present status of incidence, mortality and morbidity, symptoms, classification, pathogenesis and treatment of arterial hypertension. Prepared with painstaking attention to accuracy, it is designed for the busy practicing physician.

Condensed, yet comprehensive, this critical review of the pertinent experimental and clinical data will be found useful and informative. Some of the statistical data and its treatment in chart and table form is not available, to our knowledge, in other monographs or reviews on hypertension. Available to physicians on request.

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new varieties will occupy 217,000 acres—practically all, in fact, of Louisiana sugar growing land, and the industry will be rehabilitated.

However, eternal vigilance is the keynote. It can never be relaxed. Some of the new canes which give such fine yields and so well resist mosaic, prove susceptible to other plant diseases. New and better cane and beet varieties must constantly be bred to meet the growers' complex problems and demands. To prevent enormous losses research in plant breeding must be carried on without interruption. At the same time, as in the case of corn, a plant may be bred that is simply better all around.

Corn was first bred true for certain characters. This produced all sorts of queer monstrosities but each variety was true for certain hereditary characteristics and qualifications. The breeder could then summarize the characters he would like to have his ideal corn possess, breed from the proper "pure" strains, and behold—a *fait accompli!* This involved the isolation and testing of hundreds of true-breeding selfed lines possessing many and various characters of economic or scientific importance—some hybrids producing, for instance, from twenty to forty percent greater yields than others. Thousands of hybrids tested over dozens of seasons in many localities are now signally reducing labor and production costs by yielding more corn on fewer acres.

Finally there came Government scientists to show that plants may be bred which are resistant to bacterial diseases carried by insects. In studying the potato leafhopper they discovered that the insects did not like certain kinds of leaves that bore hairs and would bite only smooth-leaved plants. The scientific and economic potentialities of this work are stupendous and it is quite in line with very recent studies at Cornell University which have shown that races of mice can be bred which are eighty-five percent resistant to the typhoid germ, while other races can be produced that are susceptible to the extent of ninety to ninety-seven percent. Does this mean that we shall finally end diseases carried by germs by the expedient of breeding resistant human beings?

The results that flowed from the early work of Smith and Orton illustrate a fundamental quality of scientific research. When you invest in such research you should not operate on strict business principles, nor should scientists be set to specific problems and told to solve these only. One thing leads to another in science, and the beneficial results of sound research run all over the place finally. The observation that germs could cause plant diseases was a fundamental piece of scientific knowledge that seemed, however, to have no great immediate utility. Add to it, though, the further observation that lines of plants may be bred which are resistant to specific germ diseases, and a way has been opened for the solution of a hundred and one economic problems arising because plants catch diseases.

It pays, for that reason, to spend a large sum of money for equipment and for the salaries of scientists—capital investment and upkeep—and then let the research workers have their head and go their own way. It pays indeed to support a hundred such workers even in the certain knowledge that a large percentage of them are timeservers, duds, or simply amiable but futile strivers, because soon or late two or three or even

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one of the group will produce results that will pay for the entire venture a hundred times over. Moreover in solving one problem an abundance of knowledge will be produced, an unearned increment of value for the solution of other and later problems. At the same time it pays to introduce some basic organization into the carrying on of research projects.

It pays likewise to publish the results of research. In 1889 Jeremiah M. Rusk, then Secretary of Agriculture, observed that "The very essence of the duties devolving on this Department of Agriculture is that its results shall promptly be made available to the public by a comprehensive scheme of publication." He proposed therefore greatly to extend the Department's publication policy and proceeded to do so.

(To be continued)

Cheplin Biological Laboratories Purchased by Bristol-Myers Company

Purchase of the Cheplin Biological Laboratories, of Syracuse, New York, has been announced by Bristol-Myers Company. There will be no change in the policies or conduct of the laboratories, it is stated.

The Cheplin Biological Laboratories were established in 1923 by Dr. H. A. Cheplin and have through the years built among physicians a nationwide acceptance of their biologicals. This work is to be continued with no change of management or executive staff.

Dr. Cheplin was graduated from Syracuse University in 1916 and took up graduate work at Yale where he was honored by the Seessel Fellowship in Bacteriology and was granted the degree of Doctor of Philosophy in 1921. Pursuit of his graduate studies was interrupted by a term of service in World War I, during which he served in a number of hospitals and laboratories.

In 1912 Dr. Cheplin became associate professor of bacteriology at Syracuse University. Some years later he joined the staff of the Mulford Laboratories where he took over important work in connection with the production of acidolphilus preparations. The extent of his work is evidenced by the fact that he is author or joint author of thirty-two scientific papers, the more notable of which have been published in the leading medical journals of the United States.

He has been active head of the Cheplin Biological Laboratories since their organization and will continue in that capacity.

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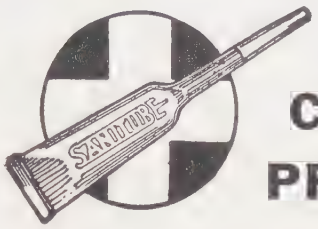

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Under the will of the late Dr. S. S. Goldwater, former commissioner of hospitals of the city of New York, Mount Sinai Hospital will receive a sum of money which with supplementary gifts from Mrs. Goldwater will be used to establish a fellowship in hospital administration to be known as the Dr. S. S. Goldwater Memorial Fund. Students and workers in hospital administration who qualify will receive $1,000 annually.

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Epidemiology of Tuberculosis

Where there is no seed, there can be no harvest regardless of the type of soil. Elimination of open tuberculosis from the community means ultimate eradication of the disease, says Dr. Hilbert Mark, (*Amer. Rev. Tuber.*, August 1942). Obviously any program for tuberculosis control, he continues, must include finding not only the infectious cases but also those in the noncontagious or minimal stage of the disease. With the dramatic and popular appeal of special tuberculosis case findings one is apt to ignore the basic principle of the epidemiology of tuberculosis. The longer and the more intimate the exposure, the greater the risk of the exposed person, regardless of age level.

Plans for Improving the Vision and Hearing of Fliers

At the eleventh annual meeting of the Institute of Aeronautical Sciences, held on January 28th at Columbia University, recommendations were presented for improving the design of American combat and transport planes to aid the vision and hearing of fliers. Dr. Walter R. Miles, professor of psychology at Yale University, read a report, and his collaborators in the preparation of the report were Commander Leon D. Carson, head of the Medical Research Section of the Bureau of Aeronautics, U. S. Navy, and Professor Stanley S. Stevens, a director of the Psycho-Acoustic Laboratory at Harvard University. Dr. Miles said that both seeing and hearing, if accompanied by prolonged attentive effort, were capable of contributing to fatigue and loss of efficiency in the pilot and air crew. Several suggestions for improving the vision of pilots, observers and gunners were made.

Professor Miles pointed out that the ears of the flying personnel were subjected to greater abuse than were their eyes, and that the problems raised by intense ambient noise are serious but not insoluble. The judicious use of sound treatment in the plane, and the development of acoustic devices to shield the mouth and the ears of the personnel will permit the aviator to carry on "in the best noises which the aeronautical engineers are now planning to produce."

The Industrial Front

Three hundred and fifty million work days lost annually through illness of the gainfully employed is our country's discreditable record, says Kendall Emerson in *Journal Lancet*, April 1942. At a wage of five dollars a day this means a $1,750,000,000 yearly deficit in labor and production. Assuming that half of this is due to preventable disease we could build a dozen battleships in the time saved by full use of known preventive measures.

In working days lost per case, tuberculosis heads the list of unnecessary disabilities. This national loss is not due alone to doctors, nor the public health service, nor the ignorance and carelessness of the people themselves. The blame belongs to all three. The fervor of patriotism sweeping the country keeps our eyes fixed overseas. We are united in the will to annihilate despotism and reestablish freedom for all nations. This is our duty, but we must not forget the treacherous enemy within our own boundaries. Tuberculosis, in collusion with its fellow fifth columnists, is impeding victory by a campaign of sabotage behind the lines.

The armed forces have foreseen the menace of tuberculosis in the ranks and are taking active measures to combat it. Industry has awakened to the threat but is still floundering in its effort to thwart it. The medical profession is only half alive to its opportunities for patriotic service. Right now is the moment to stand by the men who make the guns in an all-out fight to eradicate this leading saboteur of victory.

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